MIDYEAR REVIEW AND EAST TEXAS NUMBER 35 CENTS A COPY

THE OIL WEEKLY

OIL & GAS ENGINEERING

News Statistics

Elliott

CORE DRILLS

recover long informative cores at the lowest cost per foot of core recovered

Simple, easy operation — efficient, economical performance — dependable assurance of satisfactory recovery of long, informative cores, in all formations, under all conditions of service.

These are features which have made Elliott Core Drills standard equipment on oil wells everywhere.

Made in various types to run on both rotary and cable tool equipment — Rotary: to run on A.P.I. drill pipe sizes from 2⅜" to 8⅝". Cable Tool: to run in all standard holes from 3¾" to 12". (Larger sizes on special order.)

Tell us your coring problems and we will send catalogs and other descriptive literature gratis.

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Distributed exclusively in the United States East of the Rocky Mountains, by
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ELLIOTT ROTARY CORE DRILLS
Distributed exclusively in the United States East of the Rocky Mountains by
HINDERLITER TOOL CO. of Tulsa, Okla.

July 31, 1931

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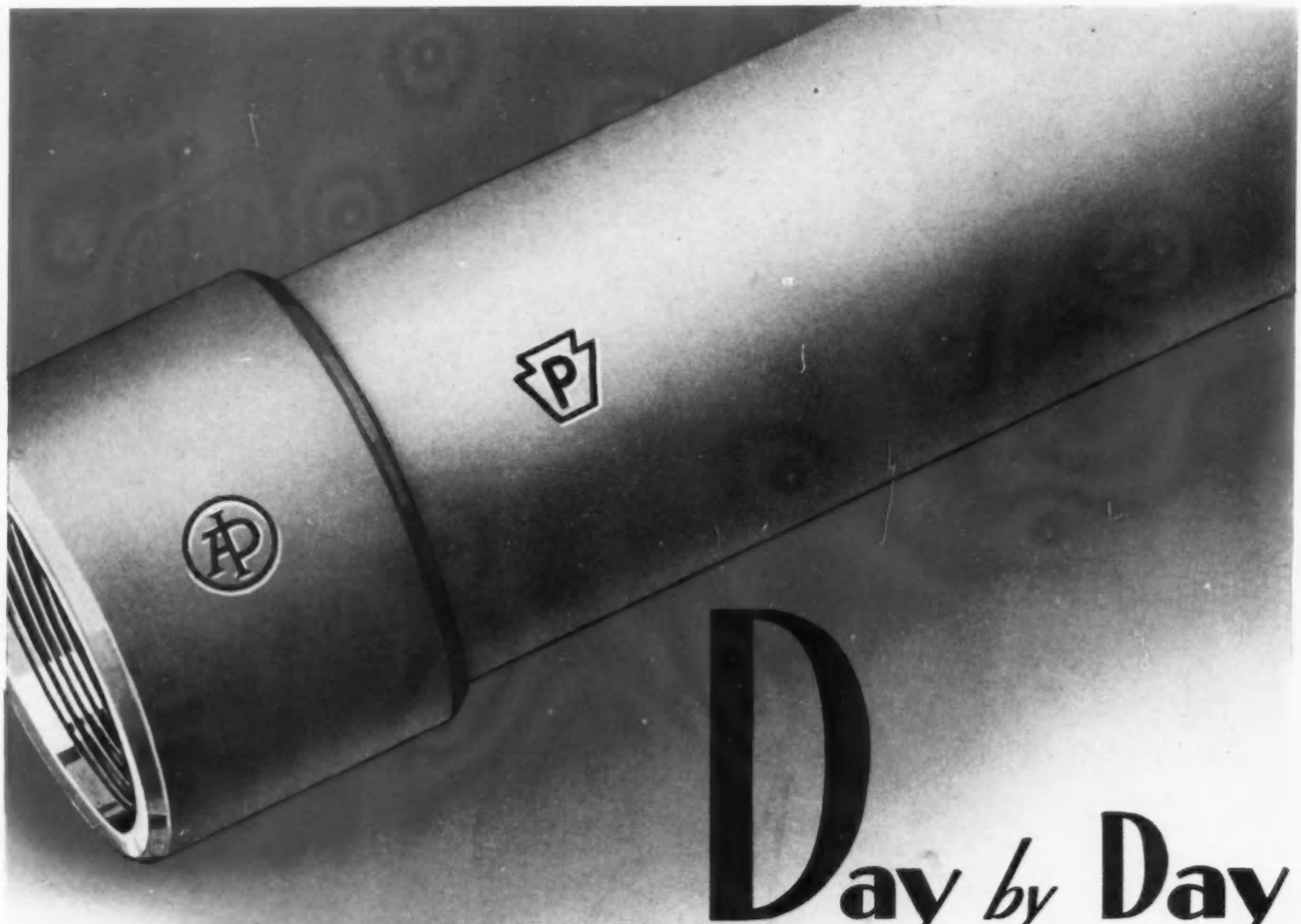


Day by Day Dependability

Although Pittsburgh Seamless has played a big part in making many great-depth records, it is not alone upon such outstanding feats that its popularity is based. An unsurpassed record of day-by-day dependability, reaching back over many years and through much rough service in the big producing fields, has made Pittsburgh Seamless Drill Pipe and Casing the *preferred* pipe and casing of many veteran oil men. The "Pittsburgh" trademark is both a badge of good service and a symbol of "down to oil" dependability. Pittsburgh Seamless *has* made good constantly and consistently because, it *is* made good consistently. You can depend upon it. It is available for quick delivery from conveniently located storage stocks.

DIVISION OF Pittsburgh Steel Co.

PITTSBURGH STEEL PRODUCTS COMPANY

Pittsburgh New York St. Louis Tulsa Detroit Chicago Houston

Complete stocks of Drill Pipe, Casing and Oil Well Tubing carried in stock at Memphis Pipe Storage Yard.

Pittsburgh Seamless

DRILL PIPE • CASING • OIL WELL TUBING

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 15 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879

STAMINA

UNFALTERING UNDER SEVERE PUNISHMENT

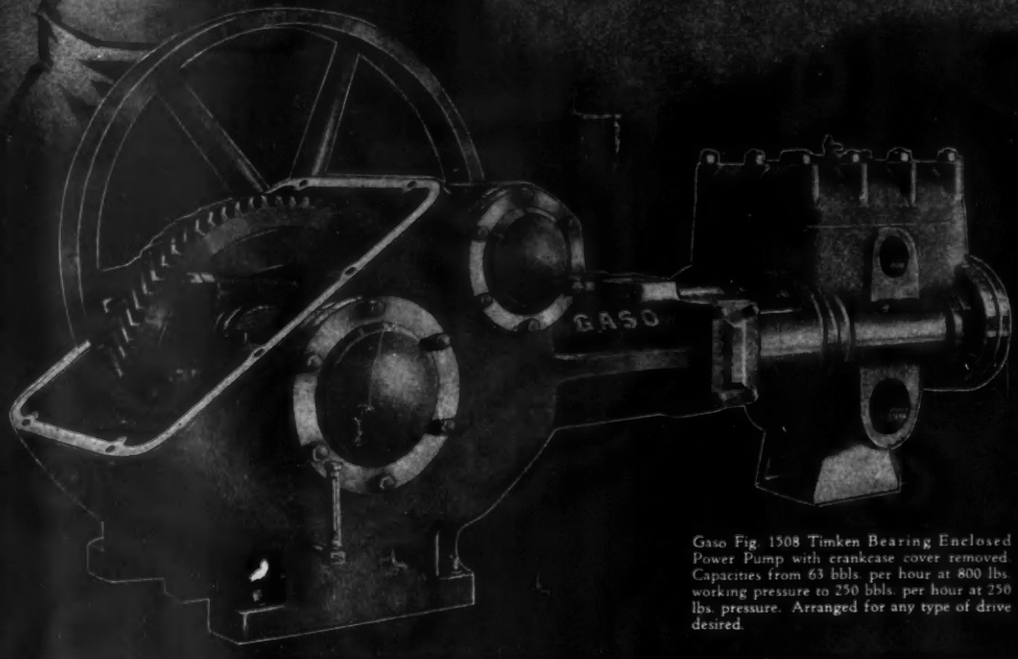
The wrestler's ability to stand punishment is as important as his skill and speed. Likewise oil industry pumps must be durable as well as efficient.

GASO Pumps are manufactured of the most suitable materials in every part. Their design provides strength to withstand severe stress. Proper bearings and adequate lubrication forestall excessive wear.

These and other reasons GASO Pumps are built with the stamina necessary for unfaltering performance under the severe punishment encountered in oil industry pumping.

Send your specifications for free information on GASO Pumps for any use you may have.

GASO PUMP & BURNER MFG. COMPANY



Gaso Fig. 1508 Timken Bearing Enclosed Power Pump with crankcase cover removed. Capacities from 63 bbls. per hour at 800 lbs. working pressure to 250 bbls. per hour at 250 lbs. pressure. Arranged for any type of drive desired.

GASO PUMPS

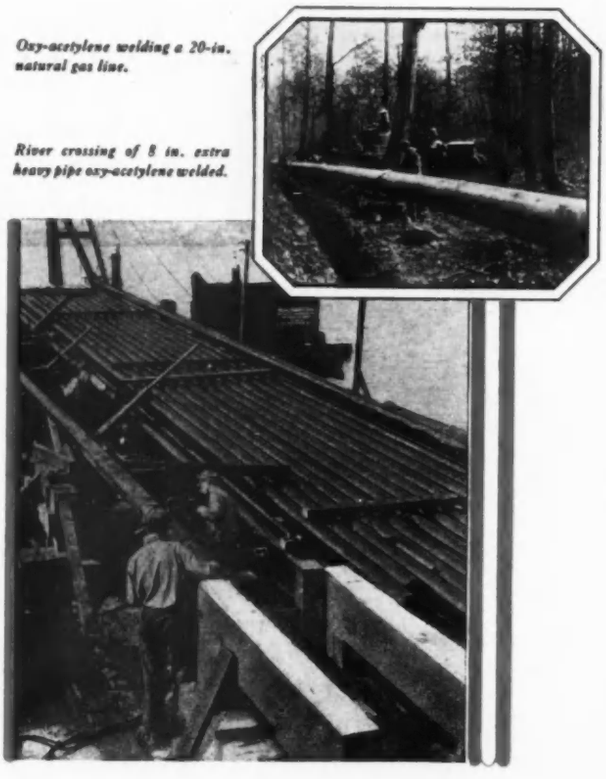
for every oil industry need

OXY-ACETYLENE

. . . Predominates

Oxy-acetylene welding a 20-in. natural gas line.

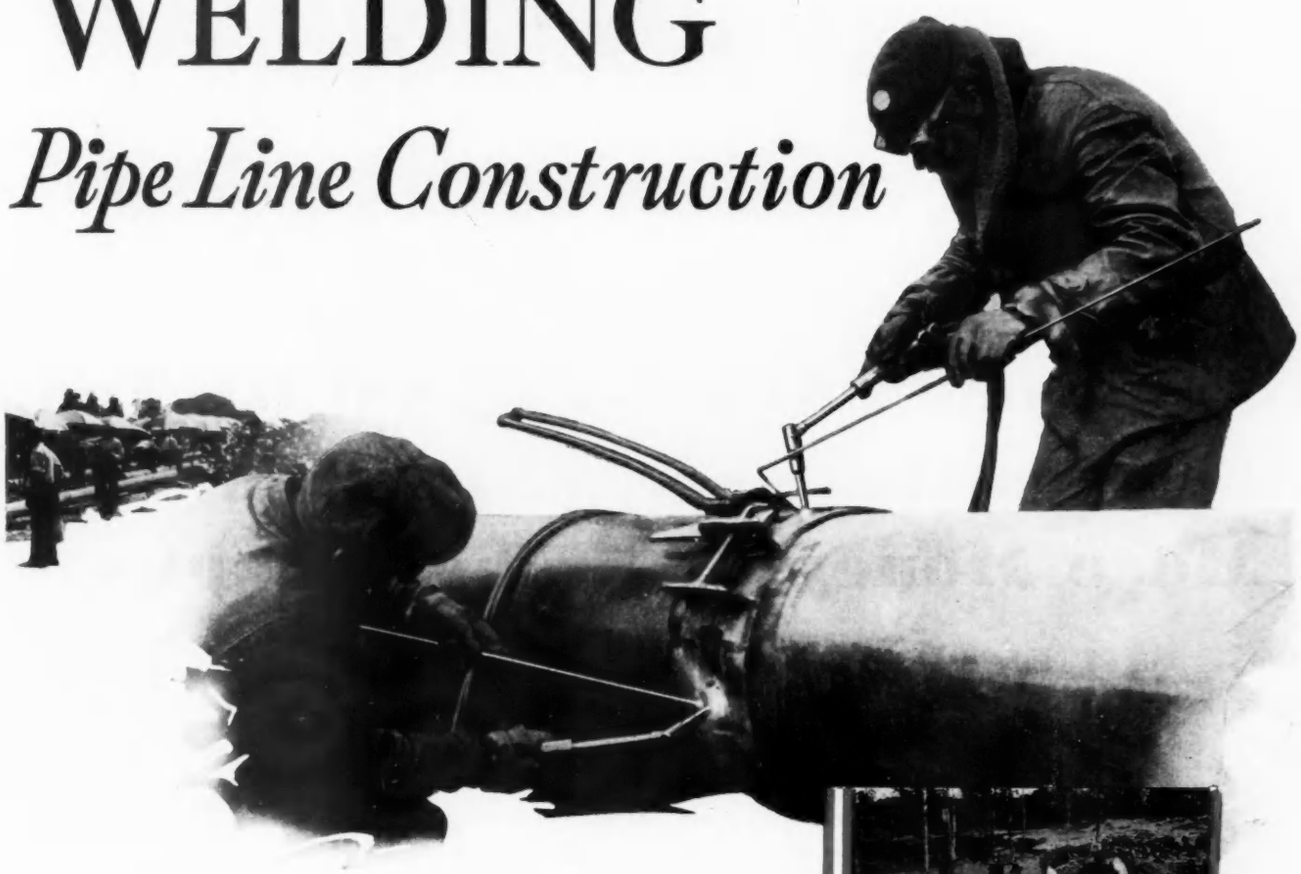
River crossing of 8 in. extra heavy pipe oxy-acetylene welded.



MORE miles of trunk pipe lines were oxy-acetylene welded during 1930 than in any previous year. More miles were gas welded than were joined by all other means combined.

In every climate, under every topographical condition, oxy-acetylene welding has proved to be the most reliable method of joining pipe lines. Oxy-acetylene welded lines are laid with confidence across rivers, over mountains, prairies, deserts, hill country and marsh land. Oxwelded lines are permanently tight and universally satisfactory from the standpoints of installation and maintenance costs and operating efficiency. Transportation of oil, gas and gasoline through these lines continues year after year without interruption.

WELDING
Pipe Line Construction



Linde Process Service assures dependable pipe welds

Linde Process Service, applied in laying thousands of miles of pipe every year, has pioneered many advances in welding for maximum speed, economy and dependability. Step by step from mobilizing, training and testing of welders this service follows through to the final testing of the completed line.

It effectively supplements the work of your own engineers. It translates proved methods and well established laboratory findings into terms of actual field operation.

If you are a user of Linde Oxygen you are privileged to call upon Linde Process Service for assistance or advice. Write or telephone the nearest Linde District Office.

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

136 Producing Plants UCC 627 Warehouse Stocks

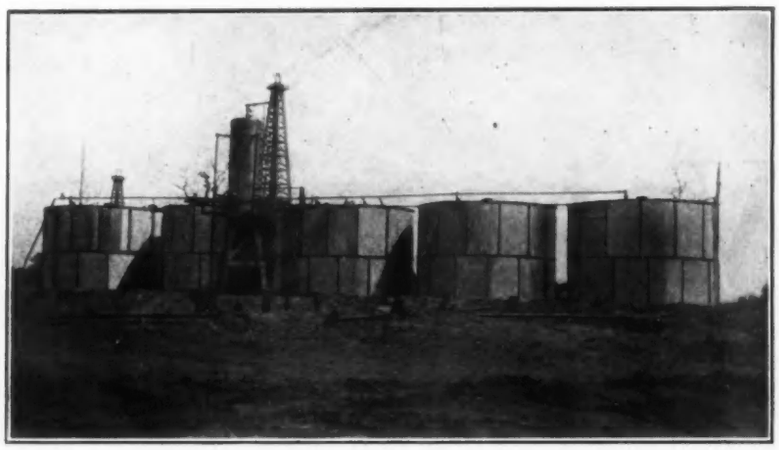
IN CANADA, DOMINION OXYGEN COMPANY, LTD., TORONTO

District Offices

Atlanta, Baltimore, Birmingham, Boston, Buffalo, Chicago, Cleveland, Denver, Detroit, El Paso, Houston, Indianapolis, Kansas City, Los Angeles, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, St. Louis, Salt Lake City, San Francisco, Seattle, Tulsa

LINDE OXYGEN • PREST-O-LITE ACETYLENE • OXWELD APPARATUS AND SUPPLIES • UNION CARBIDE

A-1720



Five 1,000-Bbl. Maloneys in East Texas District

Study our VAPOR-PRESSURE Tank Construction—See *why* You'd Make More Money with These Tanks

Maloney *Vapor-Pressure* Tanks are built—of not less than 12-gauge rust-resistant Keystone Copper Steel, strongly tied and reinforced with heavy 2-inch angles, with wide gussets on sies and ladders, coated with high grade aluminum, and equipped with efficient combination valves set at 16 ounces pressure and 2 ounces vacuum.

You can readily see that such construction would eliminate the breathing losses from your lease storage (thereby increasing your income) and would insure maximum durability (thus decreasing tank replacement costs).

MADE OF

KEYSTONE AMERICAN

MALONEY ALUMINUM PAINT

is exceptionally durable because the aluminum powder is thoroughly mixed with a spar vehicle containing water and alkali proof Inhiburine, thus increasing the rust-resisting properties of our aluminum paint.

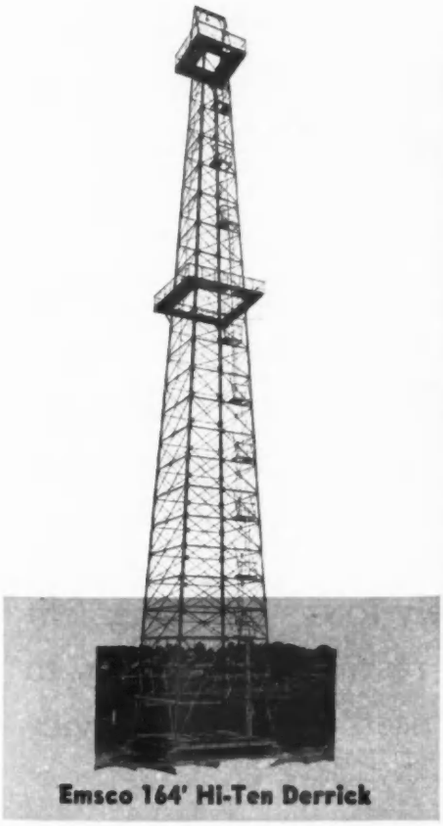
"Alone in Quality"

MALONEY TANK MFG. COMPANY
110 No. Peoria Ave., Tulsa, Okla.

Distributors at All Principal Petroleum Points
Packed in Steel-Bound Crates for Export

MALONEY

PATENT NOTICE



Emsco 164' Hi-Ten Derrick

EMSCO TUBULAR REINFORCING

Fully Protected

This practical, efficient and economical method of reinforcing is an exclusive feature of Emsco Derricks, and is fully protected by Patent No. 1,525,214, dated February 3, 1925. Other important and exclusive Emsco features are covered by the following patents, as well as numerous patents pending:

No. 1,462,746	July 24, 1923
No. 1,599,692	September 14, 1926
No. 1,605,873	November 2, 1926
No. 1,610,589	December 14, 1926
No. 1,644,499	October 4, 1927
No. 1,690,955	November 6, 1928
No. 1,764,182	June 17, 1930
No. 1,786,089	December 23, 1930
No. 1,789,598	January 20, 1931
No. 1,793,525	February 24, 1931
No. 1,796,469	March 17, 1931

EMSCO STEEL EQUIPPED WELLS ARE SAFE

EMSCO DERRICK & EQUIPMENT CO.

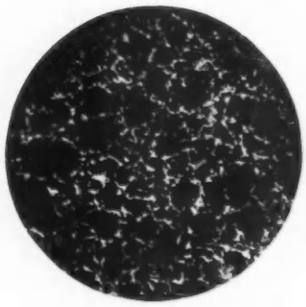
6701-7101 SOUTH ALAMEDA STREET

LOS ANGELES, CALIFORNIA

Export Office:
CONTINENTAL EMSCO COMPANY, INC.
74 Trinity Place, New York City

All Emsco and D+B Products Sold in Mid-Continent Fields by The Continental Supply Company

Scientific Reasons Why Jones Fully Normalized Sucker Rods Last Longer In The Hardest Service



An example of poor grain structure in an ordinary rod.

THE STEEL bars from which sucker rods are made may be uniform before forging but *not* after the forging operation—that is why JONES Rods are fully heat treated in a special furnace which normalizes the entire length of each rod Thus, every molecule of steel in the rod is uniformly heated—restoring the original uniformity of the steel

It is *not* the Brinnel Test that proves the superior grain structure of a Sucker Rod, it's the microscopic analysis—the only scientific method by which the uniformity of the steel texture can be determined

Compare the above with this cut. Here is the "Jones" High Manganese Rod—it shows the same, even, close-grained structure throughout the rod, indicative of its strength and high fatigue resistance.

Note the photomicrographs, showing the dense molecular structure of JONES Rods as compared to ordinary rods. Only a heat treatment which normalizes the *entire length* of the rod *at the one time,* can produce this distinctive uniformity

This treatment is exclusively JONES'—a refinement developed in the JONES research laboratory to assure JONES Sucker Rod users maximum service the world over

THE S. M. JONES COMPANY • TOLEDO, OHIO

Mid-Continent Office—McBirney Bldg., Tulsa, Okla.

Export Distributors—The Parkersburg Rig & Reel Co., 25 Broadway—Room 736, New York, N. Y.

WE PLAN, AND EXECUTE

(in collaboration with recognized contractors)

- PIPE LINES
- PIPE LINE EXTENSIONS
- DISTRIBUTION SYSTEMS
- OTHER OIL COUNTRY PROJECTS

WE maintain engineering consultation service and are one of the recognized reliable sources for Quality Equipment. We are highly responsible factors on "turnkey" jobs in collaboration with recognized contractors.

We solicit inquiries about our facilities for assisting in minor or major oil country projects, whether Pipe Line Transportation and Distribution Systems or Drilling and Pumping Problems.

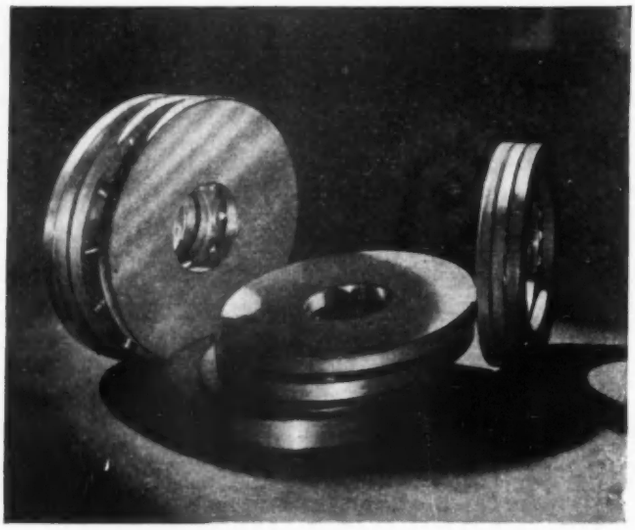
Our creed is safety and economy through Quality Equipment. We represent the world's foremost manufacturers through field stores from the Rocky Mountains to the Atlantic Coast, or by direct shipments from factory to mill.

When you think of Equipment, Supplies, Pipe Lines—think of Frick-Reid. Command our facilities at the earliest moment on any project. Every confidence respected and guarded.

FRICK ·REID·
SUPPLY CORPORATION

Distributors
from Foremost Manufacturers to Particular Consumers.

PITTSBURGH, PENN. TULSA, OKLA.



ROLLER THRUST BEARINGS

Oil Equipment Manufacturers—who use Rollway Solid Cylindrical Roller Thurst Bearings know their value in those applications where such bearings have to stand up under the grind of day in and day out service.

They know and appreciate the fundamental axiom that loads vertical to the axes of the rollers have no force component tending to displace them and hence provide the maximum thrust capacity.

Rollway Thrust Bearings are made in types to suit all applications, and in sizes up to 30″ diameter, having capacities of over a million pounds. Rollers and plates are made of alloy steel, hardened throughout to a degree combining maximum strength with maximum resistance to wear.

Submit your problems to our engineers, and benefit by their background of more than twenty years' experience in applying roller bearings to the varied requirements of industry.

ROLLWAY BEARING COMPANY INCORPORATED

SYRACUSE — ROLLWAY CYLINDRICAL ROLLER BEARINGS — NEW YORK

Pacific Coast Representatives

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WHEN AND WHERE YOU WANT IT

In addition to their dependable economical service full stocks of

WESTCOTT VALVES

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Iron Valve—Bronze or Steel Trim

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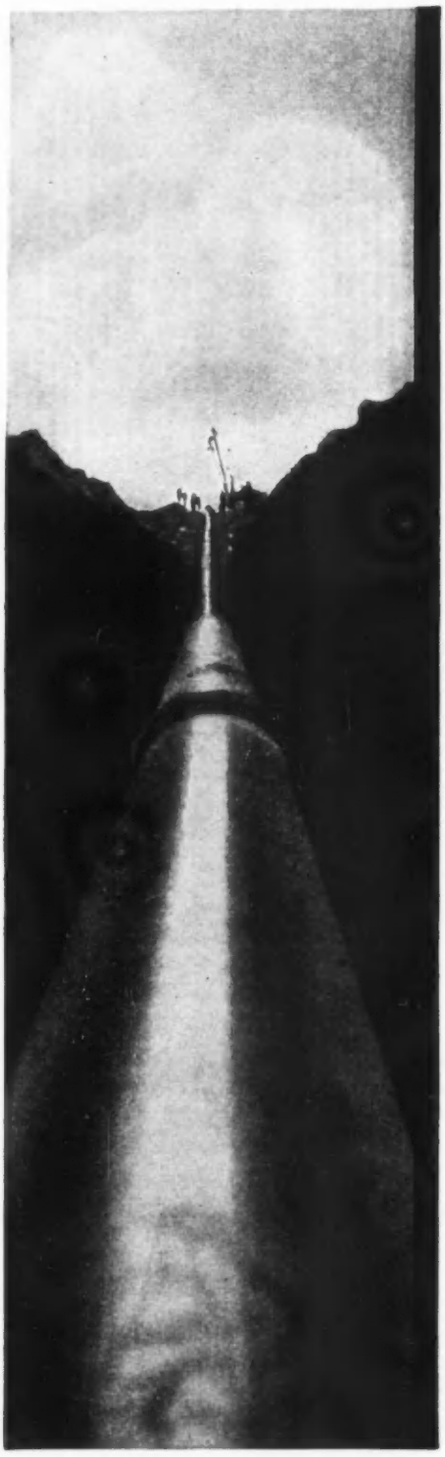
CONTINENTAL

YOUNGSTOWN

Visit our exhibit at The A. G. A. Convention, Atlantic City Auditorium, October 12 to 16 inclusive.

Electric Weld

Hundreds of miles of this 20" Youngstown electric weld pipe connect the oil and gas producing fields of the United States with consuming cities.



FOR PERMANENT PIPE LINES

THIS PIPE, manufactured from a special-process steel, offers new standards in both performance and field handling. It is strong and durable, uniform in diameter throughout its lengths, exceptionally straight and round, mechanically descaled and easy to weld and assemble in the field. No other line pipe can offer greater endurance, easier handling or greater value.

THE YOUNGSTOWN SHEET AND TUBE COMPANY

One of the oldest manufacturers of copper-steel, under the well-known and established trade name "Copperoid"

General Offices—YOUNGSTOWN, OHIO

Distributors:

CONTINENTAL SUPPLY CO. *1501 Locust St., St. Louis, Mo.*

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REPUBLIC SUPPLY CO. *2122 East 7th St., Los Angeles, Cal.*

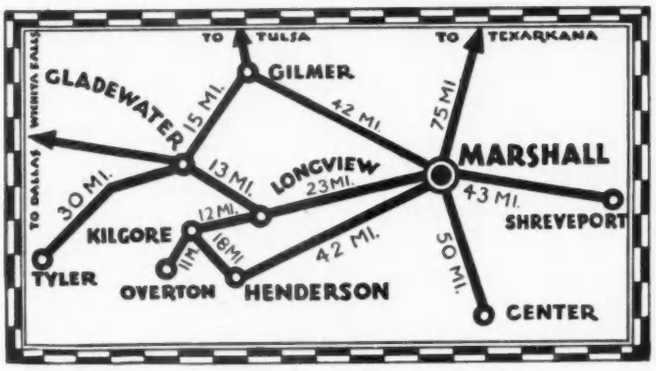
YOUNGSTOWN

FROM ORE MINE TO GAS LINE

TO THE OIL MAN IN EAST TEXAS

There's a normal, healthful home in MARSHALL *waiting for you and your family*

You and your family can have a safe, healthful, happy East Texas home—in MARSHALL. Scores of oil operators and company executives have already moved to this modern city of the Old South. Conveniently close to the oil field, it has nevertheless escaped "oil-boom conditions." Every safeguard for good health—pure artesian water, modern sewerage, no malarial mosquitoes, rigid food and milk inspection. NORMAL RENTS and living expenses—attractive modern apartments and houses $40 to $75 a month. Marshall has modern stores and theaters . . . seven lakes and a country club for recreation . . . safe banks . . . churches of all creeds . . . a splendid school system and college. Bring your family to Marshall—you'll be welcome!



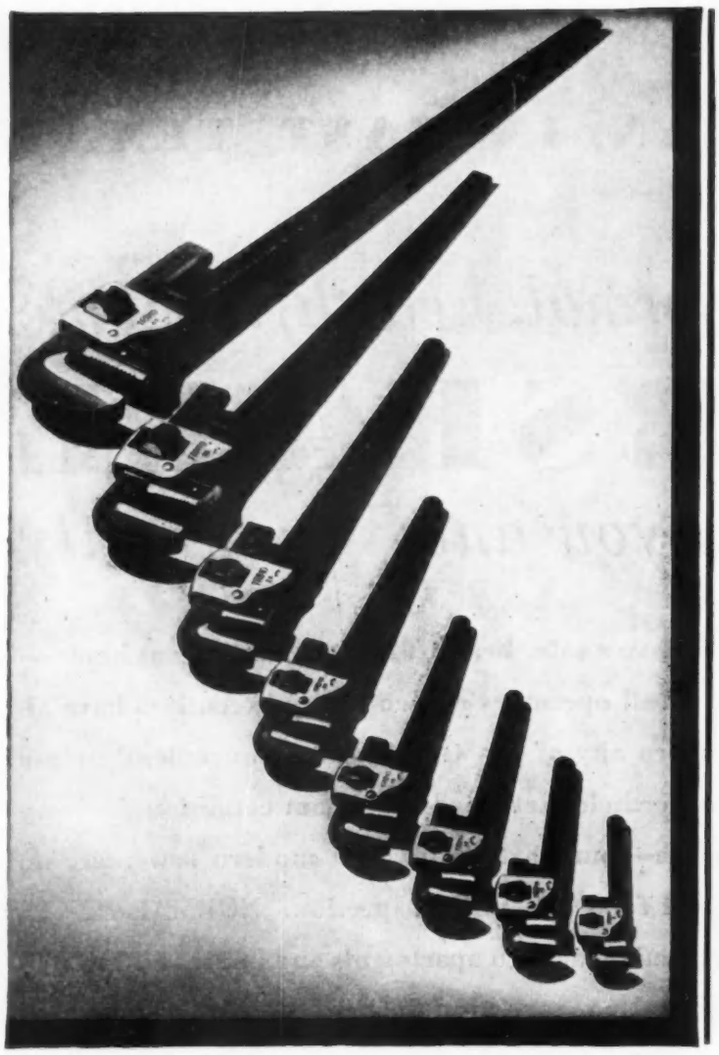
At the East Texas Oil Field's Front Door—Short Drive to All Active Areas

Marshall is the only uncrowded, normal city close to the East Texas oil fields. Study the map. You can drive to all parts of the field in ½ to 1½ hours. Bus, train and plane lines. Good roads. Close enough to be convenient for you—far enough away to be good for your family.

Write or call at CHAMBER OF COMMERCE for special booklet and further information. Complete lists of houses and apartments.

Marshall

A Normal, Healthful Home for Oil Men and their Families



All Steel TRIMO

has made strength the first consideration in the choice of a pipe wrench

WHY have so many oil men always stuck to TRIMO wrenches? Long wear has appealed to many, no doubt, and others have recognized the superior action of the TRIMO flexible frame. But the one outstanding characteristic which overshadows all others is the tremendous strength which only an ALL-STEEL tool can furnish. TRIMO is made of selected steel from tip to tip—no weak parts — no danger points. TRIMO has rightly made STRENGTH the leading consideration for every man who chooses a pipe wrench.

TRIMO

Trimont Mfg. Co., Roxbury (Boston), Mass.,
makers of TRIMO wrenches, tongs, cutters and vises

YOU CAN DRILL TO GREATER DEPTHS WITH

STANDARD SEAMLESS

HEAT TREATED

SPANG, CHALFANT & Co., Inc.

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Welded Mills: ETNA, PENNA. SHARPSBURG, PENNA. *Seamless Mills:* AMBRIDGE, PENNA.

New Savings!

GRANGER TUBING LEAK INDICATOR
Covered by Basic Patents in the United States and Foreign Countries

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New Profits!

Mr. Executive--

Your well crews

earn double

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320 E. 11th St., Tulsa, Oklahoma
R. L. MELTON, Mgr.
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This Coupon Will Bring Literature Describing the Tool in Detail. No Salesman will call unless requested.

GRANGER INDICATOR COMPANY,
137 N. Greenleaf St., Whittier, Calif.

Gentlemen: Without obligation on my part please send me full information concerning the Granger Tubing Leak Indicator.

Name .....

Position .....

Company .....

Address .....

BEARING SPECIALISTS FOR 32 YEARS

Take Your *Toughest* Bearing Job to BANTAM

BANTAM specializes on the hard ones. Throughout our 32 years we have maintained a record of successfully meeting every difficult bearing job submitted to us. Send for a Bantam man and get the facts. You will be interested, among other things, in our manufacture of ***rollers that do not break***.... The picture above, from an unretouched photograph, shows a roller thrust bearing with 30" outside diameter supplied for a rotary table used in deep well drilling in California oil fields. It illustrates the Bantam lubricating type of roller cage. We make bearings for all types of heavy duty service in oil field equipment.

THE BANTAM BALL BEARING CO.

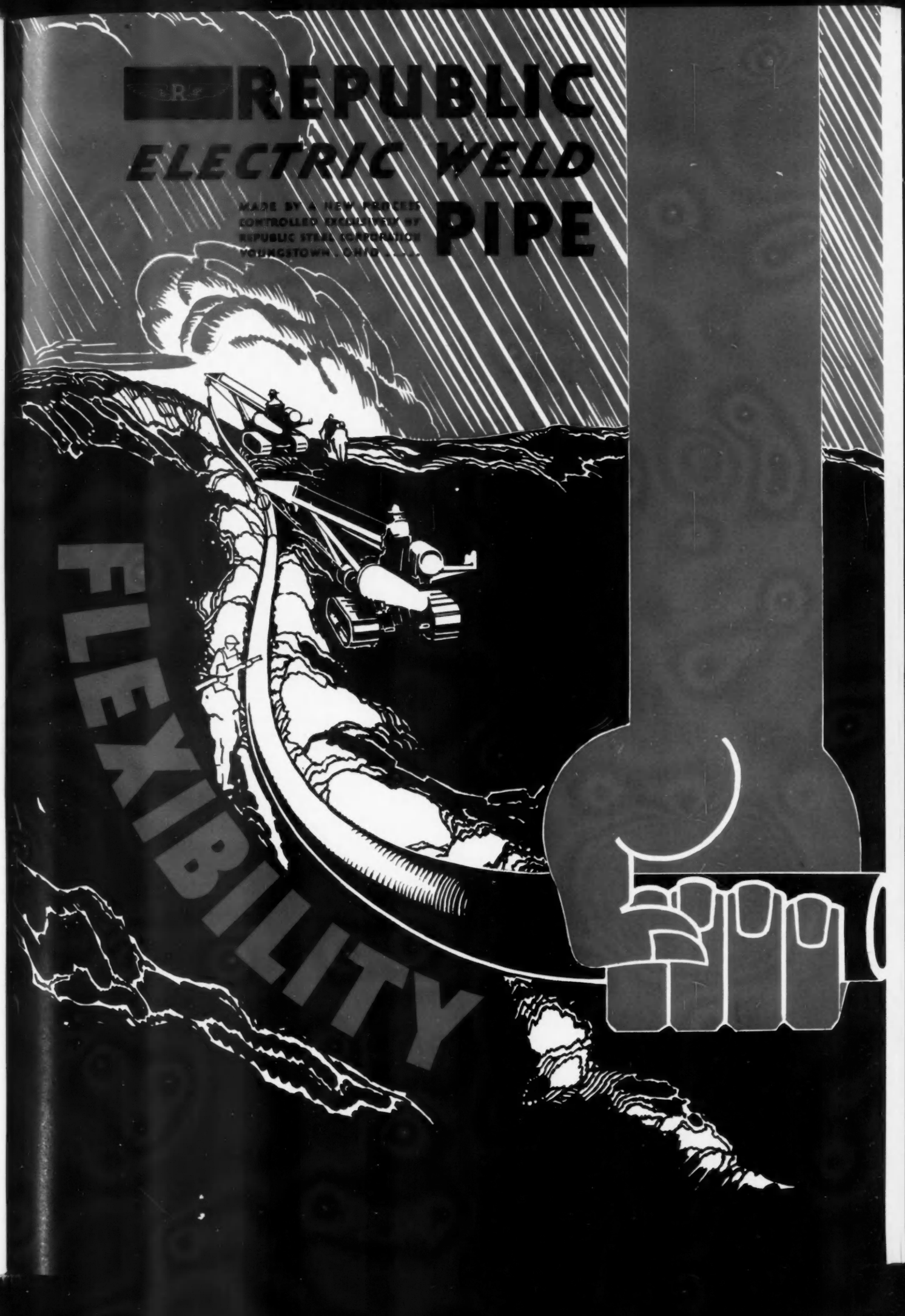
3700 West Sample St., South Bend, Ind.

NEW YORK CHICAGO PHILADELPHIA INDIANAPOLIS
DETROIT CLEVELAND ST. LOUIS

BBB

ONE OR A MILLION • ½" TO 48"

Trade Mark Reg.


REPUBLIC
ELECTRIC WELD
MADE BY A NEW PROCESS
CONTROLLED EXCLUSIVELY BY
REPUBLIC STEEL CORPORATION
YOUNGSTOWN, OHIO
PIPE
FLEXIBILITY

FLEXIBILITY

FOR FIELD HANDLING

On paper the pipe line goes straight and true as an arrow across country. But nature plays pranks with man made plans. Hills, canyons, rivers, obstructions of every sort complicate the actual laying of the line and bring to light another valuable quality of Republic Electric Weld Pipe—its FLEXIBILITY.

Field handling demands flexibility. Ditches must follow the lay of the land,—up and down, here straight, here curved. And the pipe must follow the ditch. Bends must be made on the job. Welded sections of many joints must be moved, often setting up stresses in the pipe which none but a flexible material could safely withstand, without buckling of the wall or failure at the weld.

Under such conditions the flexibility of Republic Electric Weld Pipe always meets expectations. Its perfect weld, its absolute roundness, its uniform wall thickness, its freedom from scale, its uniform structure and its long lengths all facilitate field handling.

Pipe lines are major investments.
Before you invest, investigate
Republic Electric Weld Pipe.

REPUBLIC STEEL
CORPORATION
GENERAL OFFICES: YOUNGSTOWN, OHIO

REPUBLIC
ELECTRIC WELD
PIPE

MADE BY A NEW PROCESS
CONTROLLED EXCLUSIVELY BY
REPUBLIC STEEL CORPORATION
YOUNGSTOWN, OHIO .....

Why Red-Hard Bits Drill Straighter Holes

Small pieces of Haystellite, the cast Tungsten Carbide diamond substitute, welded in place.

Surfacing a Haystellite hard-set bit with Haynes Stellite, the red-hard alloy of Chromium, Cobalt and Tungsten.

AT the 4000-ft. hard rock level in the Refugio District, a bit hard-set with Haystellite and hard-surfaced with Haynes Stellite drilled 21 ft. in 3 hrs. and was only ¼ in. out of gauge when pulled.

In shale, lime and sand, plain Haynes Stellited bits regularly drill 400 to 500 ft. without redressing.

Such records are possible only because Haynes Stellite's hardness is inherent and not the result of heat treatment. Bits protected with a few ounces of Haystellite and Haynes Stellite stay hard even at red heat. No wonder they give more footage, drill straighter holes, and last from 3 to 5 times longer!

Haystellite is a cast tungsten carbide alloy that combines diamond hardness with toughness that resists the shock and strain of drilling.

Haynes Stellite is a chromium-cobalt-tungsten alloy that stays hard even at red heat. Used with Haystellite, it gives a bit hardness and toughness obtainable in no other way.

These red-hard, wear-resisting alloys are easily applied with the oxy-acetylene blowpipe. Write today for further information.

How You Can Test Red Hardness

Deposit Haynes Stellite on a steel coupon. Allow it to cool; then try to file it. You will note that it is too hard to file . . . Now heat it red-hot with an oxy-acetylene blowpipe and try to file it at this temperature. You will still be unable to do it. Haynes Stellite stays hard even at red heat . . . What other metal could pass this test?

HAYNES STELLITE COMPANY

Unit of Union Carbide and Carbon Corporation

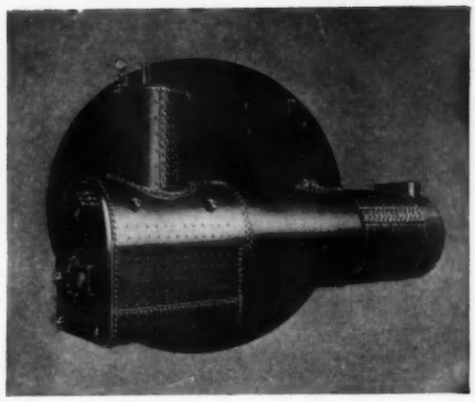
UCC

CHICAGO CLEVELAND HOUSTON DETROIT LOS ANGELES NEW YORK SAN FRANCISCO TULSA

General Offices and Works—Kokomo, Indiana

Haynes Stellite alloys are available also at all of the 42 apparatus shipping points of The Linde Air Products Company

CHOSEN FOR THEIR UNUSUAL STRENGTH



THEY STAND THE TEST OF YEARS

An operator in the Mid-Continent who has been in the game for some forty years can give a few valuable pointers to those not having the benefit of his long and successful experience.

In 1919, he bought a non-code regular type DONOVAN boiler. This boiler has been used regularly and steadily to date, for all kinds of work in various parts of Oklahoma.

The owner states that he is very well pleased with the performance of this boiler. The repair bills have been noticeable by their absence and the boiler is still in good condition and still in use.

He states that his DONOVAN is the best steamer he has ever seen. It has been fired with all kinds of fuel and has demonstrated its quality as a fuel saver as well.

The moral of this experience is: Why take a chance on ordinary boilers when DONOVANS cost no more and last longer?

Manufactured by
DONOVAN BOILER WORKS, INC.
PARKERSBURG, W. VA.

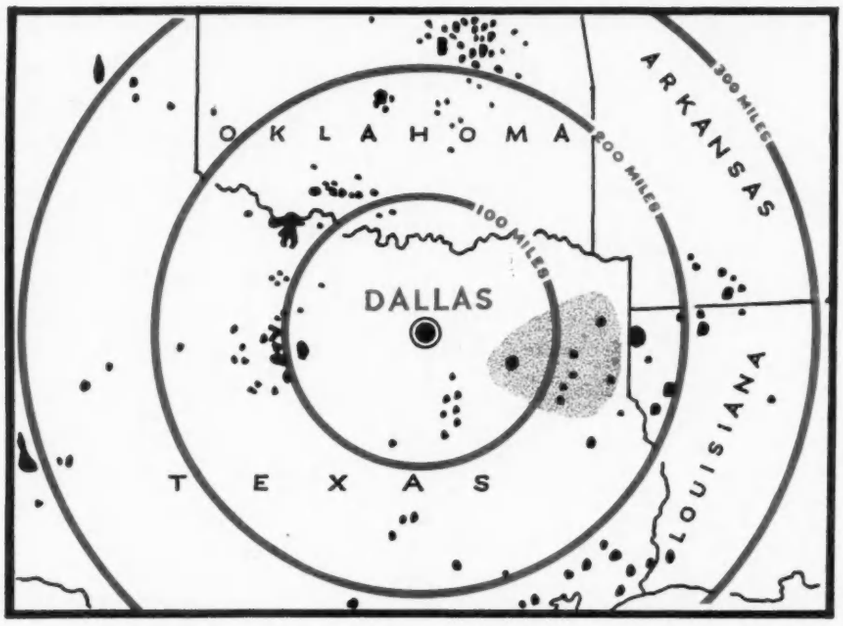
Donovan Boilers are Consistently Good

NEW YORK OFFICE—30 Church Street
FRICK-REID SUPPLY CORPORATION
Mid-Continent and Eastern Distributors

GREAT NORTHERN TOOL & SUPPLY CO.
MIDLAND IRON WORKS
Montana Distributors

DONOVAN BOILERS

"OIL..EAST TEXAS.. DALLAS" WHERE YOU HEAR ONE YOU HEAR THE OTHER TWO!



And Here's the Big Time-Saving Reason...

LOCATION

Dallas has long been recognized as "Southwestern Headquarters to American Business." Recent activity in East Texas has speeded the recognition of Dallas as a major oil center. Not only is it rapidly becoming a base of operations for East Texas development, but the nearness of Dallas to the East Texas fields has emphasized the importance of Dallas to all other Southwestern oil fields.

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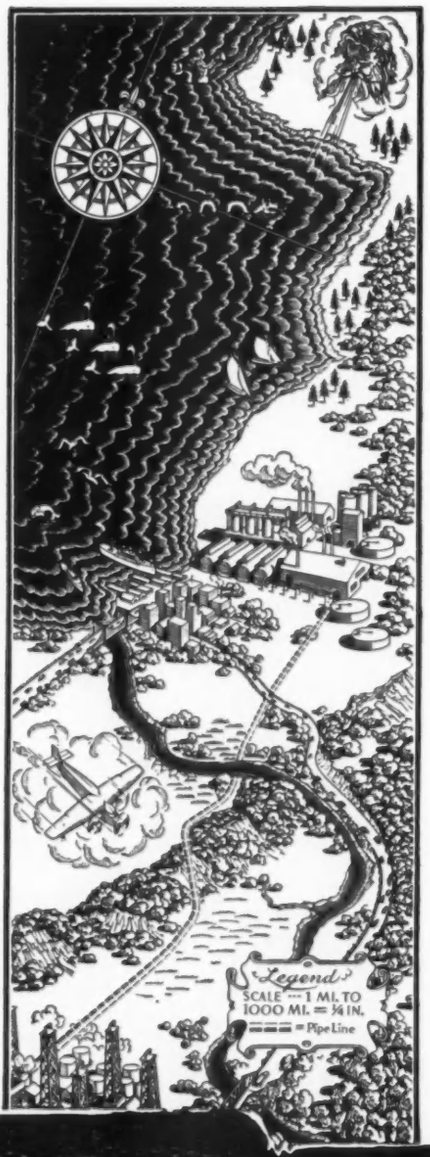
We welcome the opportunity to tell oil men more about Dallas. Write us—or call at our office the next time you are in Dallas. Industrial Dallas, Inc., 555 Chamber of Commerce Bldg., Dallas, Texas.

Dallas

Southwestern Headquarters to American Business



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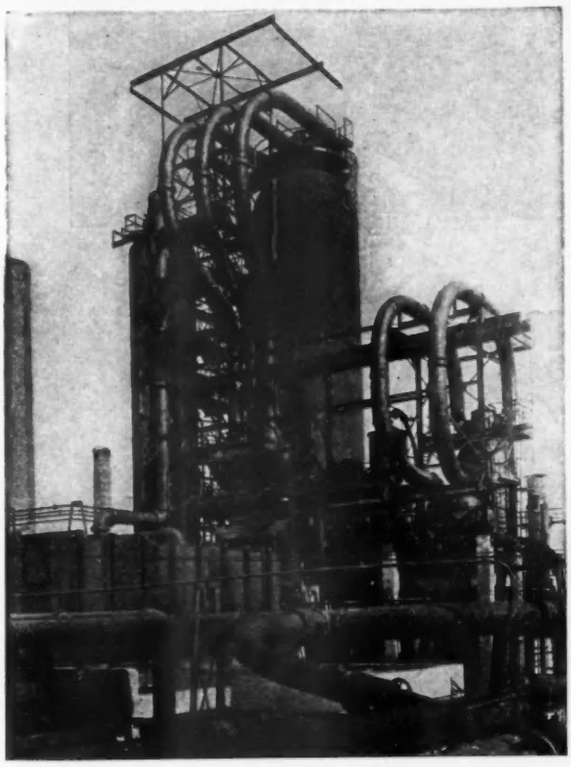

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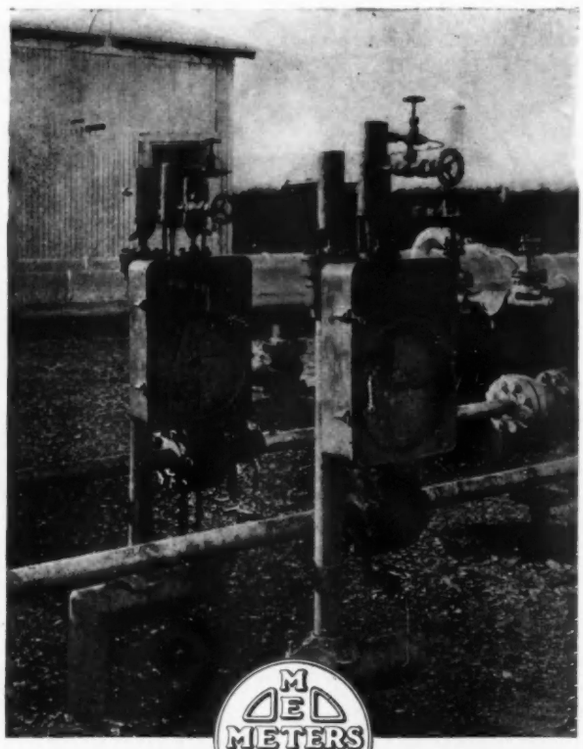

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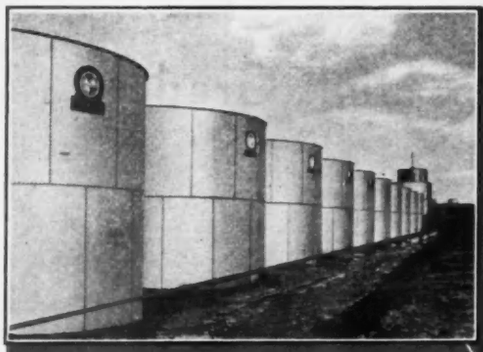

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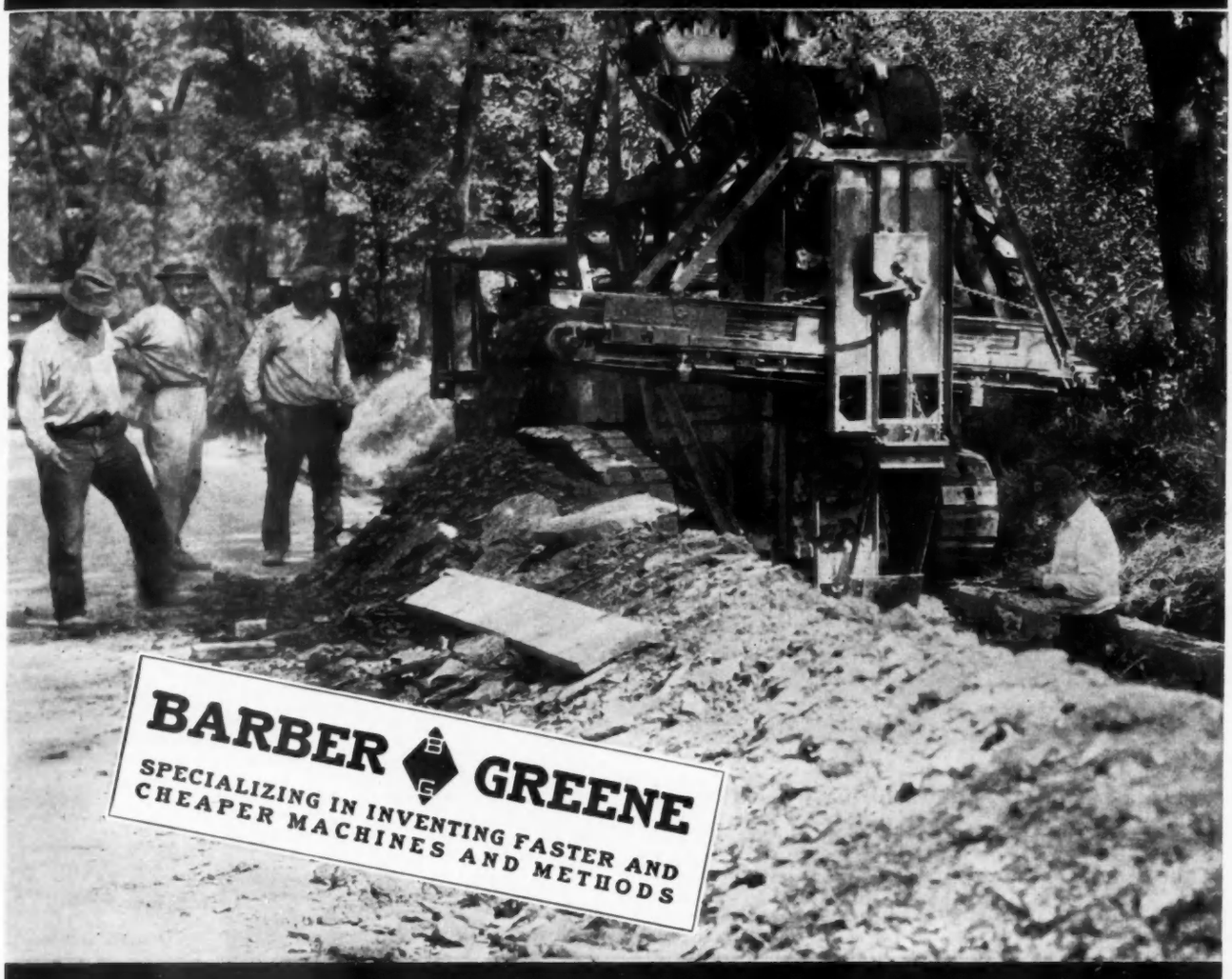

Down in the Ozarks, a big ditching contractor put two Barber-Greenes to work with several ditchers of another make.

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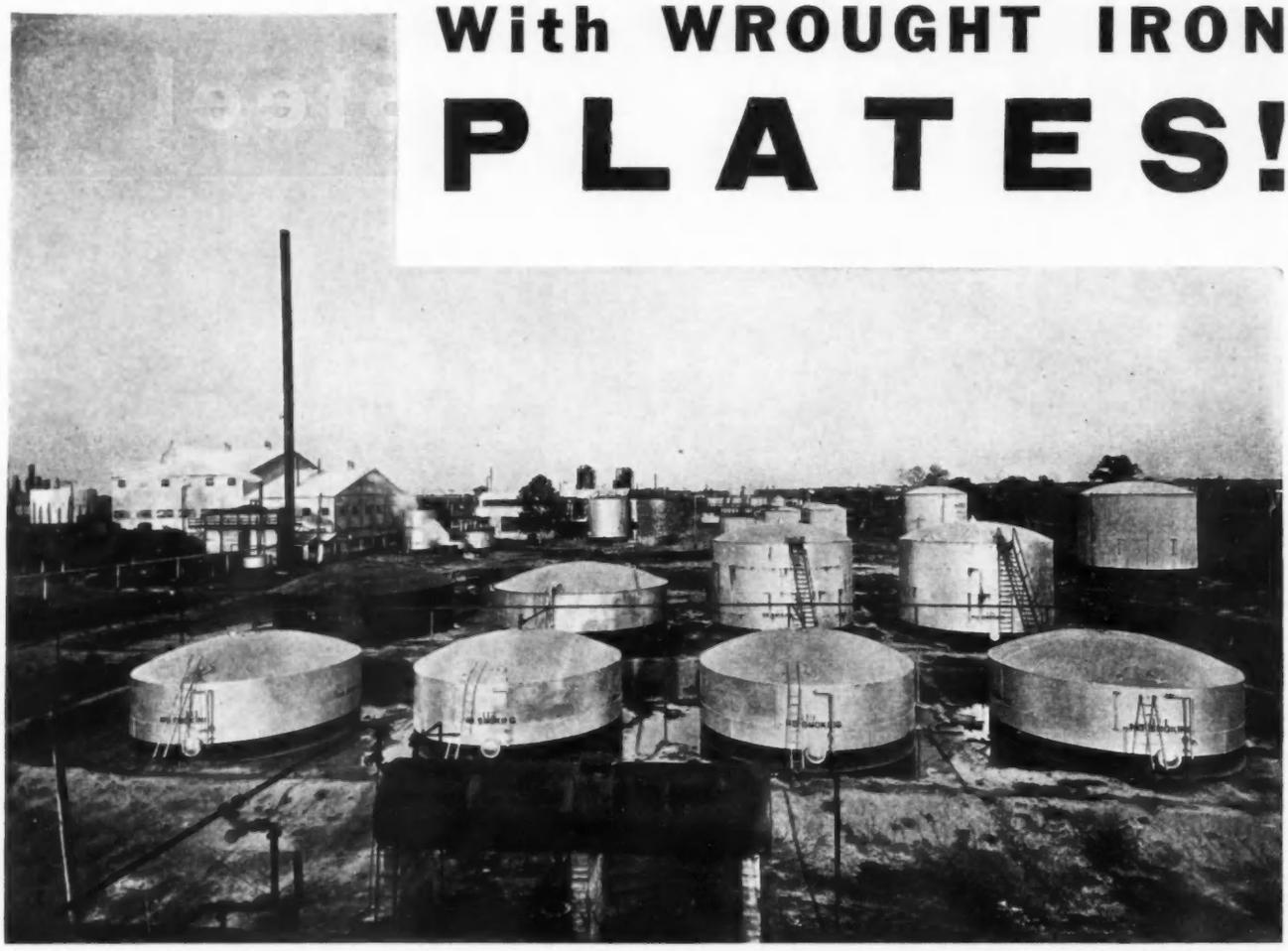

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TUBING	COUPLINGS	BAR-IRON
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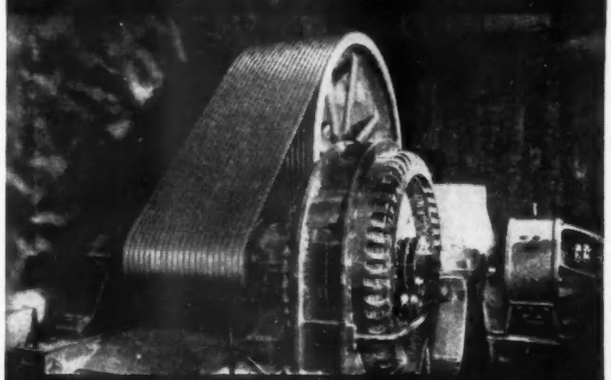
DAYTON COG-BELTS BEND AS EASILY—AS NATURALLY AS YOU BEND YOUR FINGER!



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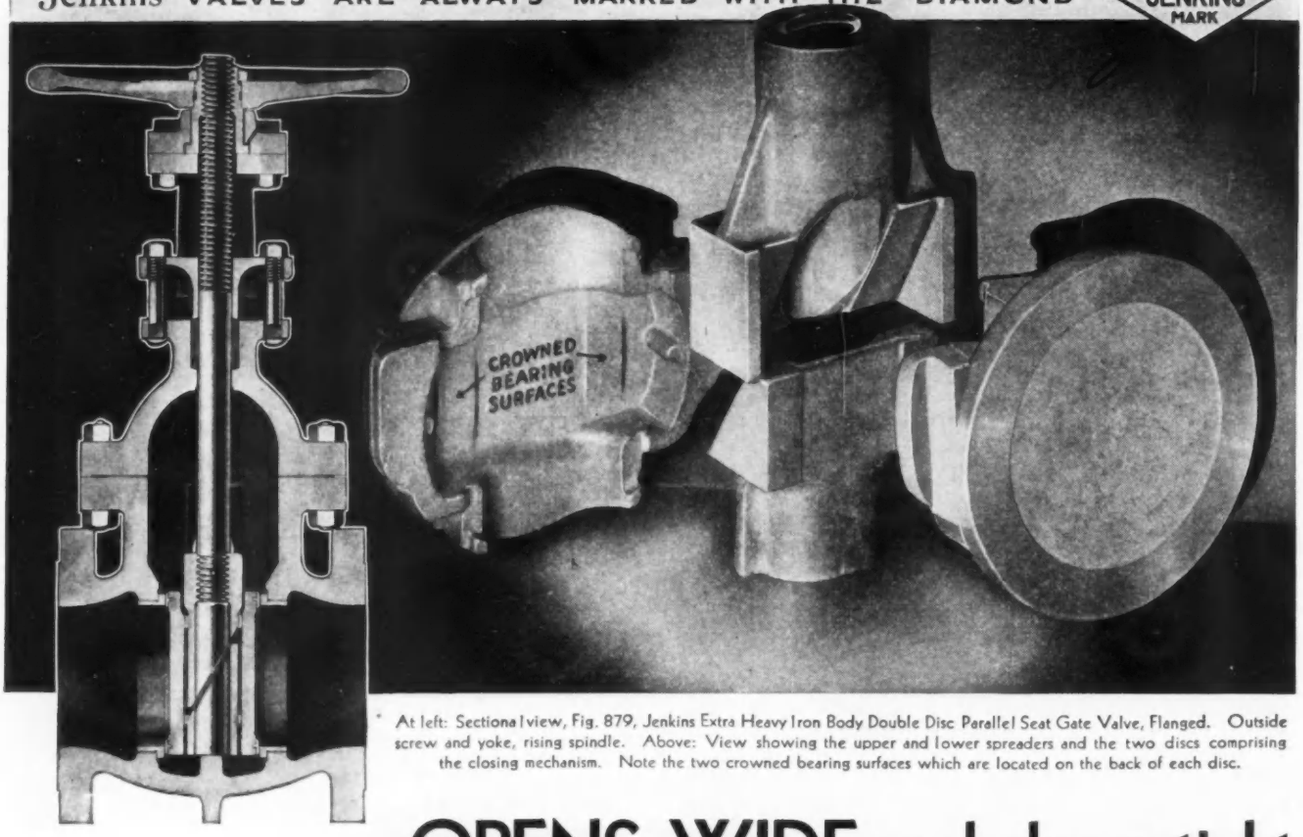


At left: Sectional view, Fig. 879, Jenkins Extra Heavy Iron Body Double Disc Parallel Seat Gate Valve, Flanged. Outside screw and yoke, rising spindle. Above: View showing the upper and lower spreaders and the two discs comprising the closing mechanism. Note the two crowned bearing surfaces which are located on the back of each disc.

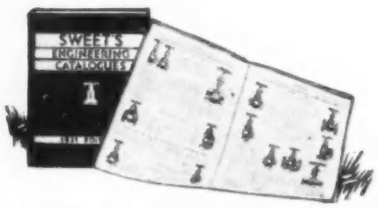
OPENS WIDE and closes tight

THIS new Jenkins Iron Body Double Disc Parallel Seat Gate Valve will not jam. Neither will it stick. The reason lies in the unique disc and spreader construction.

The two parallel discs make a clean contact with the seat rings in the body. This contact is uniform all around, because the pressure exerted by the spreaders is uniformly distributed over the discs due to the two crowned bearing surfaces on each disc, their correct size and accurate location. There is no sliding, rubbing or scraping between seat rings and discs, either when the valve is being opened or being closed. Contact is perfect.

The two inter-acting wedge-shaped spreaders do not exert pressure against the discs during closing until after these discs are in the final closing position. Dragging on the seats is prevented because the discs do not START to leave seat rings, during opening, until after all spreader pressure is relieved.

This means no jamming, no sticking. It makes possible smooth valve operation and definitely contributes to good performance. Form 143, giving details, sent on request.



See the complete Jenkins BOOK OF VALVES Catalogue No. 22A on pages 819 to 866, 1931 edition of Sweet's Engineering Catalogues

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VALVES
Since 1864

THE OIL WEEKLY

July 31, 1931
Vol. 62, No. 7

S. W. ROBINSON
Editor

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Published Weekly by
THE GULF PUBLISHING COMPANY
HOUSTON, TEXAS

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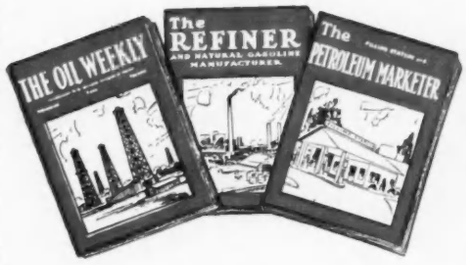

SPECIALIZED OIL JOURNALS
Published by
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R. L. DUDLEY, *President*
A. L. BURNS, *Gen'l Manager*
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J. KENT RIDLEY, *Managing Editor*

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Issued Friday of each week. Single copies 15 cents. Subscription price: Domestic $1.00 a year, Foreign $1.00 a year. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879. Subscription restricted to those engaged in the producing and pipe line branches of the oil business or the manufacture and distribution of oil field supplies. Advertising rates on application.

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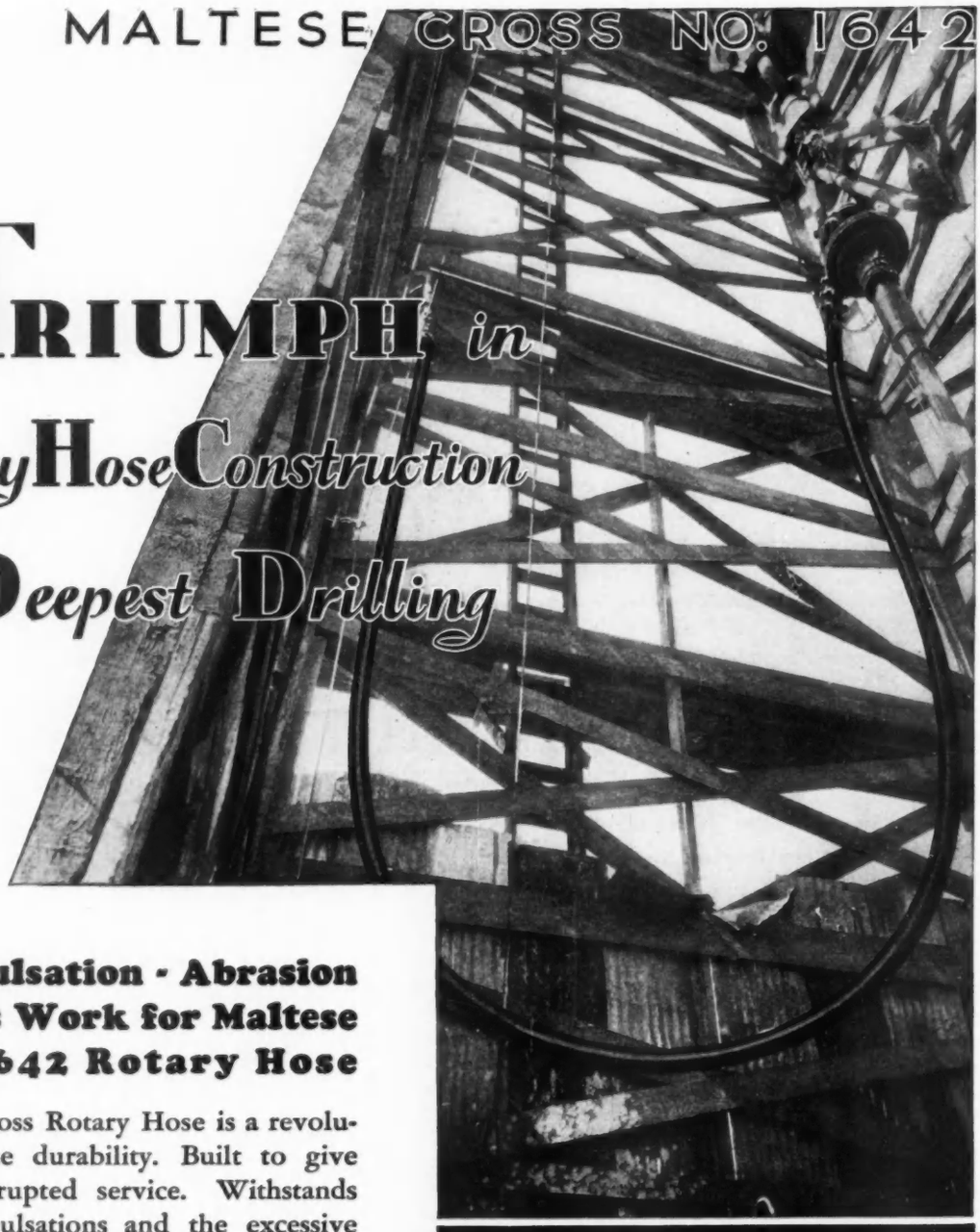
a TRIUMPH in Rotary Hose Construction for Deepest Drilling



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The new Maltese Cross Rotary Hose is a revolutionary step in hose durability. Built to give economical, uninterrupted service. Withstands mud erosion, oil, pulsations and the excessive pressures encountered in drilling to the present-day extreme depths. Note its rugged construction . . . its special combination wire reinforcing . . . its outside protection of spiralled duck tape.

There is a specific Hewitt-Gutta Percha rotary hose for every class of drilling condition: *Maltese Cross* No. 1642 for the highest pressures; *Monarch* No. 1139 and *Ajax* No. 1728 for less strenuous jobs.

Cut drilling costs — insist on highest quality — specify Hewitt-Gutta Percha.

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OIL WELL SUPPLY CO.

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THE OIL WEEKLY

VOLUME 62, NO. 7 JULY 31, 1931

Economic Production Limit 2,429,000 Barrels Daily

By H. J. STRUTH
Staff Economist

IF the petroleum industry expects to put an end to its economic troubles this year, it will be necessary for producers to maintain their combined daily crude output at an average not to exceed 2,429,000 barrels through the balance of the year. In the January 30, 1931, issue of THE OIL WEEKLY it was pointed out that the economic crude production limit for this year would necessarily have to be maintained at a daily average not to exceed 2,328,000 barrels. During the first six months of this year, actual production averaged 2,320,000 barrels daily. As a result of voluntary and forced curtailment during this period stocks of crude were reduced to the extent of about 21,025,000 barrels, despite the fact that East Texas acted as a wedge that prevented the realization of benefit from such efforts. Incidentally, the results obtained from proration in the form of the indicated stock reduction implies that East Texas was the one deterrent to market improvement which would undoubtedly have been realized but for this new flood of cheap oil.

A review of the oil situation during the first six months of this year reveals some conflicting conditions that contributed to the uncertainty of the economic picture. Although crude production was maintained at a sane level in practically all sections of the United States except East Texas, and stocks were consistently drawn upon, crude prices continued to react to lower levels, reaching their lowest point in years on July 8. Not only was crude production held in check, but drilling subsided to a practical standstill in practically all major areas of the country with the exception of East Texas. Nevertheless, new oil production shattered all records with a gain over the corresponding period of last year of 228 per cent.

Figure 1 presents a graphic view of the significant changes in the oil industry's statistics for the first half of this year compared with the same period of last year. The favorable factors, as shown, include curtailed crude production and refinery crude runs, a decline in imports of both crude oil and gasoline, increased domestic gasoline consumption and a material reduction in stocks of crude and gasoline. The unfavorable factors, which caused the drastic recession in crude and gasoline market values, appear to be concerned chiefly with the situation which developed in East Texas. There, drilling in of new wells resulted in a flood of oil that offset whatever benefit might have accrued to the industry from an otherwise favorable statistical position. Completion of 1044 new wells in East Texas during the first half of this year, resulting in 986 producing oil wells having a combined rated initial flow of 7,549,235 barrels, heralded a menace to the industry's price structure that severely upset all calculations. In the short space of six months this area became the leading source of crude oil in the United States, and at prices which even in the depressed condition of the industry toward the close of last year were not considered possible.

PROJECTED SUMMARY OF SUPPLY AND DEMAND LAST HALF OF 1931

	Barrels
Domestic Gasoline Demand	220,000,000
Foreign Gasoline Demand	28,000,000
	248,000,000
Imported Gasoline	8,000,000
	240,000,000
Natural Gasoline and Benzol	20,000,000
Net Gasoline Production	220,000,000
Refinery Crude Required	475,000,000
Crude Imports	34,000,000
Net Domestic Crude	441,000,000
Probable Exports	23,000,000
Total Domestic Crude Required	464,000,000
Expected Withdrawal from Storage	17,000,000
Net Production Required	447,000,000
Daily Average	2,429,000

What Happened to Crude Market

What happened to the crude market during the

first half of this year is clearly shown by Figure 2, wherein the downward revision of the three leading crude markets are recorded. The reduction subsequent to this period, initiated on July 8, brought the crude price structure to the lowest point recorded in many years and forced the shutting in of thousands of pumping wells in the Mid-Continent. A tabular record of crude price changes during the first half of this year is also presented herein, showing in chronological order the principal changes posted by the leading purchasing companies.

That the statistical position of the industry was materially improved during the first half of this year is shown by the supply and demand factors for that period. Table 1 presents the salient facts in connection with the crude oil situation. It shows, in comparison with the same period of last year, the favorable changes recorded in stocks, production and imports. It also shows the extent to which demand slumped as a result of the general business depression. Compared with last year, there was a decline in the demand for crude of 33,406,000 barrels. At the same time, production plus imports declined 49,635,000 barrels. In the January 30, 1931, issue of THE OIL WEEKLY it was estimated that the total demand for crude would aggregate 456,264,000 barrels during the first half of this year. Actually, the demand amounted to 467,648,000 barrels, or 11,384,000 barrels more than was anticipated by the estimate. Of the total crude demand, it was also estimated that the refineries would consume 442,099,000 barrels, whereas the actual consumption figures for the first half of this year showed a consumption of 439,348,000 barrels, or 2,751,000 barrels below the estimate. This shows that the refining branch of the industry managed to exercise careful control over its operations, as the estimate was based upon a conservative gasoline consumption figure, and allowed for a larger consumption of natural gasoline for blending than the figures for this period indicate was consumed.

COMPARISON OF CRUDE SITUATION
(All Figures in Barrels)

SUPPLY	1931*	1930
Stocks, Jan. 1	512,797,000	528,939,000
Production (6 mos.)	420,293,000	465,128,000
Imports (6 mos.)	26,330,000	31,130,000
Total Supply	959,420,000	1,025,197,000
DEMAND (6 Mos.)		
By Refineries	439,348,000	477,657,000
Other Domestic	16,500,000	11,303,000
Exports	11,800,000	12,094,000
Total Demand	467,648,000	501,054,000
Stocks June 30	492,772,000	524,143,000

*Data for June estimated to complete Six Months. Figures for First Five Months taken from Bureau of Mines reports.

Half-Year Production

Preliminary figures on crude production for the first half of this year indicate that total output amounted to about 420,293,000 barrels, whereas THE OIL WEEKLY's survey of last January indicated a production limit for this period of about 409,811,000 barrels. Accordingly, there was an excess production during the first half of this year of about 10,482,000 barrels. Texas led all states in the quantity of crude oil produced during the first half of this year. Facts at hand show that Texas produced 148,952,000 barrels, or approximately the same

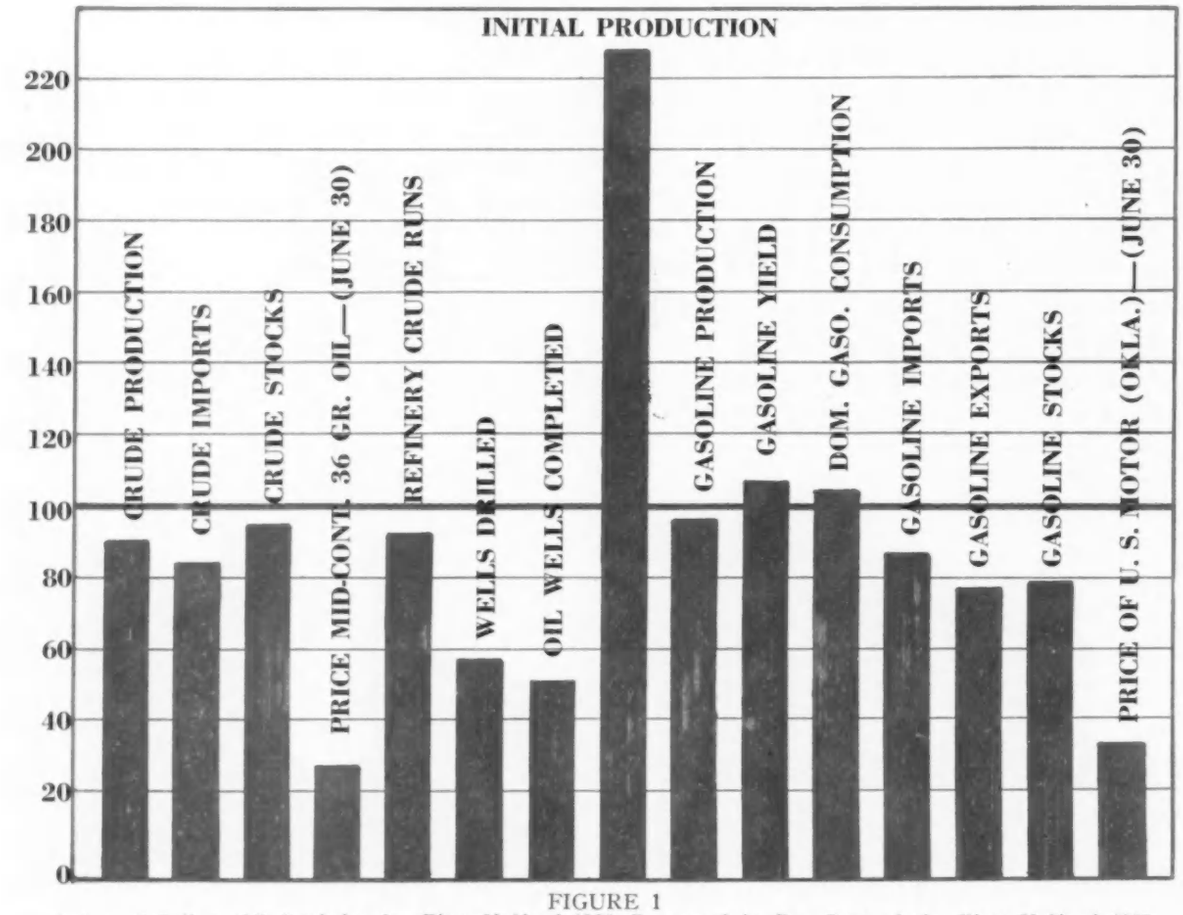


FIGURE 1
Index of Salient Oil Statistics for First Half of 1931 *Expressed in Per Cent of the First Half of* 1930. *Heavy Line*—100, *represents First Half of* 1930

quantity produced during the first half of last year. Oklahoma, Kansas, Arkansas, Eastern States and California recorded substantial declines in production during the first half of this year, accounting for a decline in the United States total of nearly 45,000,000 barrels.

Detailed figures of crude oil production by states, as well as a summary of field operations are given in Table 2. The degree to which drilling declined during the first half of this year is shown by the fact that only 5888 wells were completed as against 10,418 wells during the same period of last year. All states contributed to the sharp decline in drilling during this period. The number of producing oil wells completed also dropped sharply, from 5941 wells in 1930 to 2943 this year. Because of the success attending drilling operations in East Texas, the number of dry holes drilled in Texas was proportionately smaller. It will be noted that there were only 846 failures in Texas, against the completion of 2645 holes, whereas during the same period of last year there were 1346 failures against the completion of 3370 holes. Initial production soared to new high levels during the first half of this year, increasing to 9,910,000 barrels against 4,352,000 barrels last year. The initial production obtained in East Texas tells the story of this unusual increase.

Decline in New Wells

Interesting comparisons can be obtained from Table 3 which shows the highlights of field operations in the leading producing areas of the United States. Where well completions increased from only 23 last year to 1044 this year in East Texas, operations at Santa Fe Springs, California, dwindled to but five completed wells against a total of 217 last year. The Seminole area reveals a decline of similar intensity, where well completions dropped from 349 last year to but 58 this year. Another pertinent fact is the decline recorded in drilling in the Gulf Coast. At the beginning of this year, a majority of operators in the Gulf Coast area agreed to curtail drilling rather than to effect an immediate reduction in production from flowing and pumping wells. That this agreement was fully carried out is shown by the decline in well completions from 558 last year to 297 this year. Changes in production status of the leading fields are also of particular interest. East Texas entered the crude picture this year with a total supply of 30,642,050 barrels, exceeding the output of Oklahoma City and the output of the entire Gulf Coast. Oklahoma City production increased nearly 7,000,000 barrels over the same period of last year, while Seminole output declined about 1,500,000 barrels. Playa del Rey, California, also recorded a considerable volume of new crude supply with a production of 5,587,600 barrels. At the same time, production at Santa Fe Springs declined from 26,086,400 barrels last year to only 12,833,600 barrels this year. The Hobbs area of New Mexico also recorded a sharp increase in production; from 1,878,450 barrels to 7,052,450 barrels. West Texas production was sharply lower; the Winkler field recording a decline under last year of more than 6,000,000 barrels and the Pecos field a decline of more than 8,000,000 barrels. Results of United States field operations for the first half of this year and last year are graphically illustrated in Figure 3.

Gasoline Consumption

Somewhat surprising was the half-year record of domestic gasoline consumption. At the beginning of this year, it was estimated by THE OIL WEEKLY that domestic gasoline consumption would probably amount to 188,053,000 barrels. Actual consumption for the first six months of this year amounted to about 197,000,000 barrels, or about 9,000,000 barrels more than anticipated. It was estimated that the total gasoline demand including foreign sales, would amount to 223,230,000 barrels. Actual consumption statistics show that the demand aggregated 222,350,000 barrels, or 880,000 barrels less than the estimated total. This is a remarkable development, since it proves

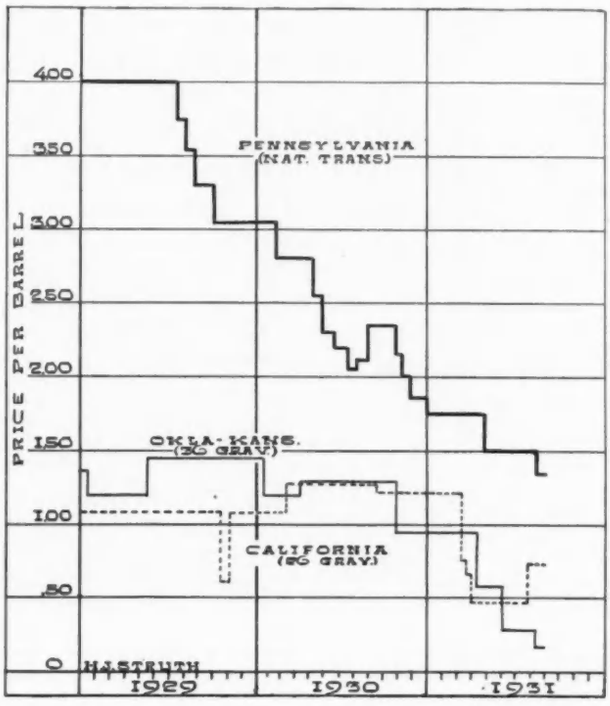


FIGURE 2
Course of Crude Oil Prices

that domestic gasoline consumption had proven to be a material offsetting influence to the decline in foreign sales. Compared with the same period of last year, however, the demand for gasoline has shown a decline of about 2,032,000 barrels. Nevertheless, the actual demand proved to be materially above expectations and actually exceeded official and private estimates for this period. The result of curtailment of refinery crude throughput and an unexpectedly large volume of domestic gasoline consumption made necessary the withdrawal of about 11,043,000 barrels of gasoline from storage. Stocks of gasoline

(*Continued on page* 112)

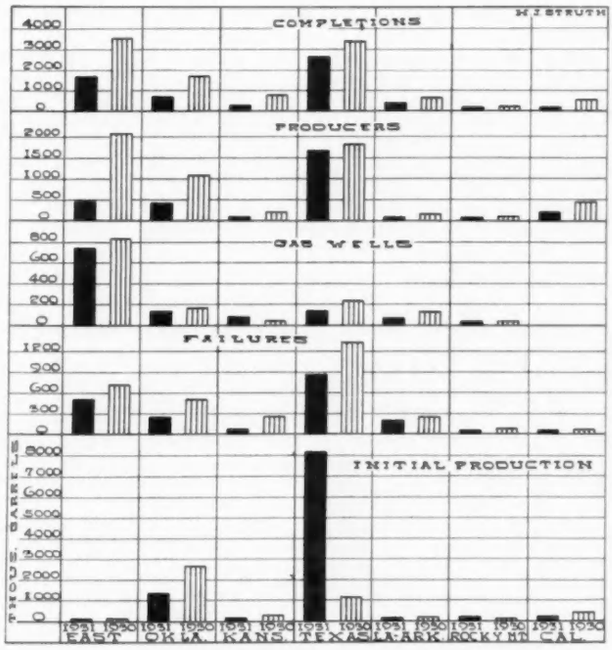
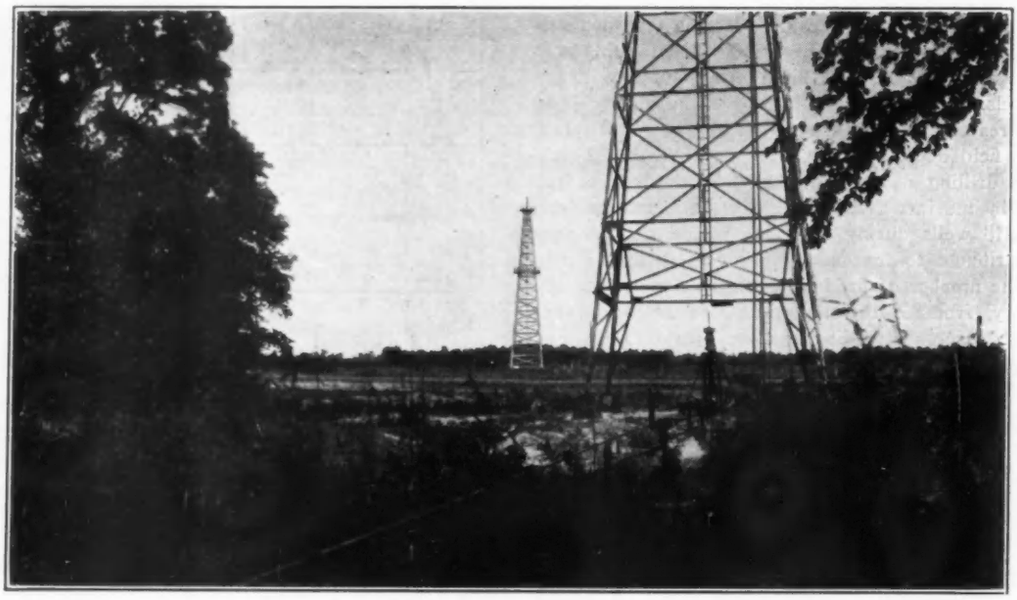


FIGURE 3
Field Operations in Major Areas, First Six Months of 1931 *and* 1930



A well in the Joiner Field pumping from a central power

Economies Imperative in East Texas Field Work

Possibilities foreseen that some wells will never be pumped because of high lifting costs incidental to salt water encroachment.

By JACK LOGAN
Staff Representative

PARADOXICALLY, the flush field of East Texas is one demanding unprecedented economies in development and production operations despite the fact that dry holes are virtually unknown within its limits and that 10,000-barrel producers are only ordinary wells.

For with his crude going on the market at some of the lowest prices ever known in the oil business, and with the low prices generally attributed to overproduction in this immense field itself, the East Texas producer finds himself in an ironical mesh of circumstances. He must drill and operate his wells with the greatest possible economy because they produce so much oil.

Confronted with this exceptional state of affairs, he must be reconciled, at least temporarily, to operation of his properties at meager profits or even losses, with hope of better times ahead; or else he must be content to dispose of his holdings at the non-inviting prices which are currently available.

In other fields and other times operators bought relatively expensive equipment, hoping to complete wells which would prove capable of producing as much as 1000 or 2000 barrels daily, but at the same time running the risk of a considerable percentage of dry holes.

The East Texas operator of today, however, because of the existing economic situation, must work under highly contrasted conditions. If his lease is anywhere within the 110,000 acres of proven territory he is fairly certain of a producing well—one capable of flowing a large volume of oil daily over a long period. The near-ideal drilling conditions permit rapid sinking of wells at relatively low costs, with proportionately simple and low priced equipment. The Christmas Tree on a typical well, for instance, is devoid of the complicated fittings now required in high-pressure fields, and 94-foot combination drilling and pumping derricks are common, while it is likewise ordinary practice to complete a well and to leave it without a derrick indefinitely in anticipation of long flowing production. All these favorable circumstances being offset, however, by the inordinately low price of East Texas crude, the operator is confronted with the urgent necessity for holding down his costs to low levels.

In spite of this necessity, however, the East Texas operators as a rule recognize the paramount importance of safety for workmen and properties, and their expenditures in equipment and operations are left commensurate with safe practice, blowout preventers being used invariably and due precautions being insisted upon. While there has been considerable carelessness, risking of unworthy equipment, and lack of realization of existing dangers in the past, approximately a dozen wild or burning wells out of about 1500 drilled or drilling since discovery of the field have served to impress the operators with the imperative need

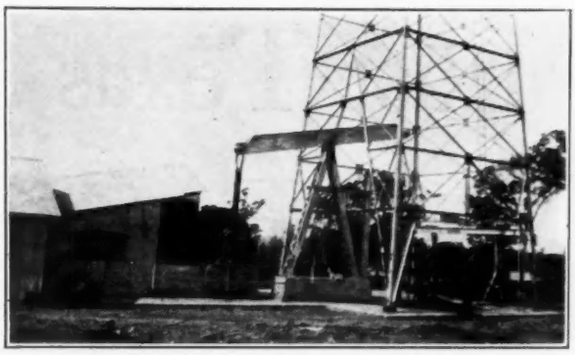
for caution, various ones of the wild wells have resulted in fatalities, and one falls in the category of a major catastrophe of oil producing history, having been responsible for the fatal burning of nine men.

Because of the fact that a predominantly large percentage of producing wells are still flowing, and since drilling continues upon a vast scale, this discussion of East Texas field methods is concerned to considerable extent with information on practices in regulating flowing wells and with data on drilling methods and costs. In addition, however, there is included information on present and prospective pumping wells, and on salt water menace which will confront the East Texas operators when the wells quit flowing.

Regulating Flowing Wells

Despite alleged over-production, the East Texas field as a whole is producing oil in accordance with certain sound principles. Beginning with completion of the discovery well, it became common practice to equip wells with tubing prior to completion, and to flow them through the tubing, taking fullest advantage of the natural lifting agencies. Limited market outlet in most instances also necessitated restriction of production through chokes or flow beans.

The Railroad Commission of Texas in its original proration orders sanctioned these production practices, providing that potential daily production of wells be determined by gauging them while flowing through 2½-inch tubing and through 11/16-inch chokes. Proration rules have been disregarded to considerable extent it is true throughout the history of the field, but many of the operators have observed them voluntarily, while others have been forced to do so in effect by virtue of not being able to find markets making proration violation possible. In the instances where production has been thus restricted, relatively small chokes have been necessitated, and conservation purposes upon which the proration orders were based have been accomplished; namely, the limitation of the volume of gas accompanying the oil, and the prevention of premature water intrusion by virtue of coning of wells.



Eddie M. Jones-Houston Oil Company's L. D. Crim A-1 Kilgore, rigged to pump when it stops flowing

Stanolind Oil & Gas Company's Snoody 1, Longiew, showing well head and separator arrangement

As result of the above production practices, voluntary or forced, there has been relatively little gas wasted in the East Texas field. Much of the gas which is produced is used as fuel, the owner of the well utilizing it for drilling additional wells on the same or an adjacent lease, or else selling it to another operator on a nearby tract. When no use or market for the gas can be found it is commonly piped about 100 feet away from the separator and at such distance is allowed to escape through a vent extending about 20 feet vertically into the air. This line for waste gas usually consists of four-inch pipe. The gas being poisonous, and constituting a menace to cattle and livestock as well as to persons, particularly in the valleys and low places, it is frequently burned by igniting it at the mentioned vent, which is thereby converted into a flare or torch which lights up the countryside for considerable distance at night.

Oil and gas separators are used on virtually all wells, being installed prior to completion of the well. Practices of installing them vary almost as much as the numerous sizes and makes which are to be found in the field. In some instances they are placed on platforms immediately adjacent to the wells. In other cases they are placed at various distances from the well on steel or wooden platforms. The hilly, rolling country in which the field is located also makes common the placing of the separator along a hill side, permitting flow of oil by force of gravity from the separator to lease tanks erected farther down the hill.

Flowing Well Practice

To illustrate more clearly the practices and results in handling flowing wells in East Texas, some actual instances are herewith cited, based on observations made at random in the field at the middle of June. Stanolind Oil & Gas Company's Snoody 1, restricted by proration to 209 barrels daily, was being held within that allowance, flowing through 2½-inch tubing, pinched with a flow bean to 4/64-inch opening, and showing 350 pounds pressure on the casing and 340 pounds on the tubing. The well had been on production about one month. The derrick had been moved off the well, and production was going into a 30,00-barrel daily capacity separator mounted on steel platform. The small amount of gas which the well yielded was being discharged into the air without being burned, passing through such a vent as previously described. The oil passed to a battery

(*Continued on page* 68)

East Texas Just Beginning As Equipment Market

By WALLACE DAVIS
Staff Representative

FAILURE of oil country equipment manufacturers and distributors as a whole to cash in to any appreciable extent thus far on the nation's biggest field leaves them at this time with one consolation . . . East Texas has done a good job of cleaning the operators' field docks and division warehouses of used material and left the way open for a healthy buying program. It has served as a burial ground for more so-called junk equipment than the average half dozen fields in the world, and the manufacturers' greatest competitor, his own old equipment, should be largely eliminated for some time to come.

In particular has the slate been cleaned of used material in Mid-Continent and Gulf Coast fields. When East Texas first broke in a big way highways from Oklahoma, Arkansas, Louisiana, New Mexico and every direction in Texas were lined with trucks rushing used equipment to the hot spot. One railroad pulled 5400 cars of used oil field equipment into the East Texas field in six weeks during the rush period.

It is by no means inferred that considerable new equipment has failed to find a market in East Texas. The fact is that there are selling concerns who reached their heyday there, and numerous specialty manufacturers have had an enormous turnover in this field. With the drilling peak past and many rigs stacked, the only remaining immediate market for drilling equipment is in accessories and replacement parts, except for possible purchases by newcomers to the area. And, even this last mentioned source is a more remote prospect on drilling equipment due to the high percentage of contract drilling in East Texas. But the manufacturers of drilling equipment should not take the lull too seriously. . . . Only one-tenth of the locations in the East Texas field had been drilled on July 1.

Pumping equipment manufacturers are finding their East Texas market opening rapidly, and the likelihood of 500 to 700 wells being on artificial production by January 1 in the field points to good business in this line. Wells opened wide on test after flowing several weeks are, in many cases, dropping 25 per cent in pressure in 30 minutes even in the north end of the field, where pressures are the strongest. The one problem facing the pumping equipment manufacturer is the presence of paraffin, which engineers in the area now hold up as a serious problem in East Texas with the approach of cold weather. Low prices of natural gasoline has kept gasoline plants out of East Texas thus far, but plans now being figured for recycling of warm gas into wells in this area point to the building of such plants, even though the natural gasoline recovered be incidental. Such methods in the field as yet, however, have gone no further than the rumor stage.

No market of consequence on sizeable storage has been had in East Texas, although manufacturers of small lease tanks have good business to their credit. Indications are that big tanks should shortly find a good market in the area, and the new purchases should outweigh the number of used tanks dismantled and moved in from other farms.

Of the used material yet on hand, tubular goods predominates. But with an expected completion of 1000 additional wells in East Texas before January 1, and even with further slackened activity, the area offers a real market for new casing and tubing. A healthy market is likewise offered for control equipment.

That the bottom of the used equipment heap is being reached is evidenced by the fact that more new material was sold in East Texas during June and July than all the preceding months in the field's development. Practically all materials buying in the field, particularly new stuff, has been on the "hand to mouth" basis. Oil company warehouse stocks are as low in East Texas, taking the operators as a whole, as is possible to have and yet maintaining working convenience. And the shelves and racks in other fields throughout the country have been stripped to stock East Texas warehouses. It looks like a buying program from the ground up and down when normal activity is resumed over the country, and in East Texas on production equipment with anything like the present activity continuing.

A Loading Rack in East Texas

Geology and Economic Importance Of the East Texas Field

By J. S. HUDNALL

J. S. HUDNALL, author of this geological paper on the large East Texas field, is a member of the firm, Hudnall & Pirtle, consulting geologists, San Antonio and Tyler, Texas.

The firm established a geological information service in East Texas in February, 1931, when only a few wells had been completed in the new field; and with Mr. Hudnall in active charge of field work, assisted by a staff of trained men, the company has assembled and maintained geological information which is probably not excelled in completeness and thoroughness even by similar data of the most thorough major companies.

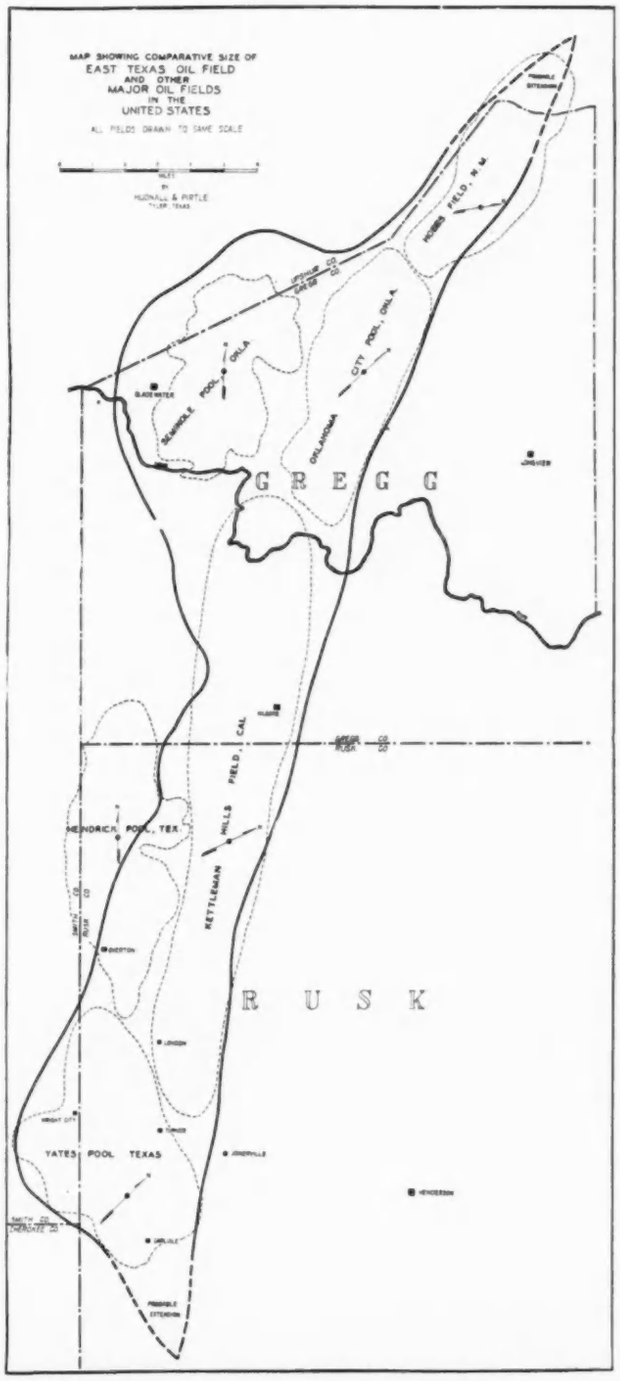
With this comprehensive store of information at his disposal, and having watched it from the beginning to now, Mr. Hudnall is particularly well qualified to write with authority about this immense field which has monopolized the interest of the oil industry.

A STUDY of the geology and economic importance of the East Texas oil field leads the geologist and economist to startling conclusions. The immense size of the producing area, the consistent results of drilling, the effect upon the industry as a whole have not yet been realized by the most experienced and far-sighted leaders of the industry. A brief outline of the geology of the area and a suggestion of some of the economic effects that this tremendous pool is going to have on the industry is herein attempted.

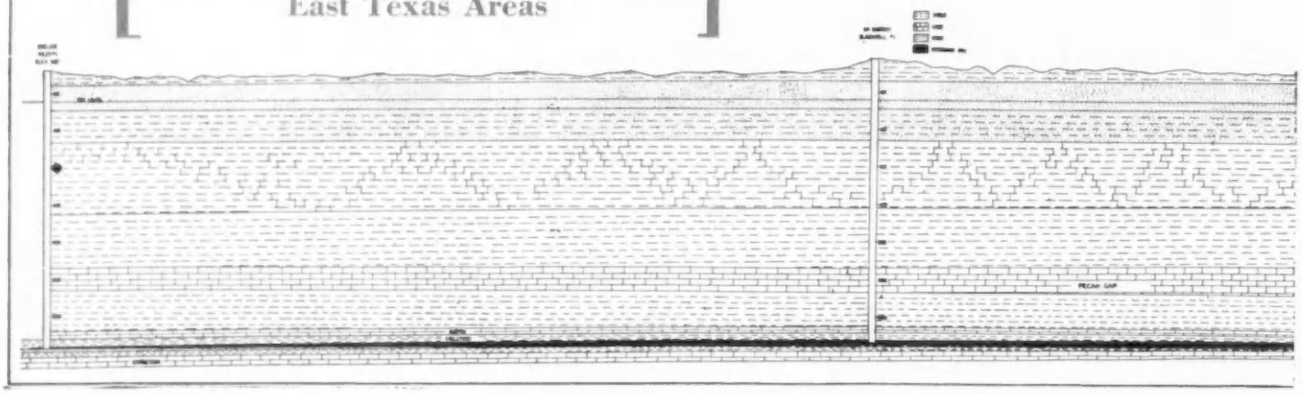
The geology of the area is comparatively simple, though a great deal of the detail regarding sand lenses is yet to be worked out and will require considerable detailed work and collecting many cores and cross sectioning of the sand.

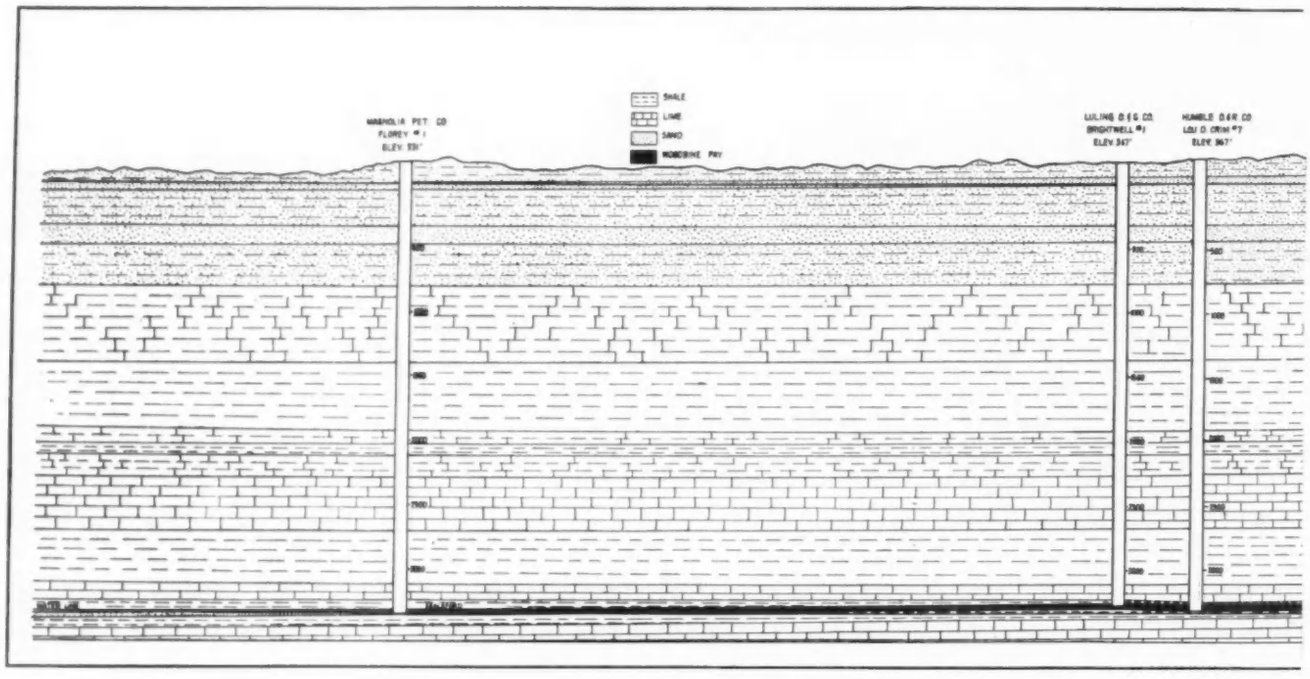
The broader geological features are that the accumulation occurs in the top or eastern limit of the Woodbine sand, which dips to the west at the rate of 40 feet per mile. The sand was deposited on the flank of the Sabine Uplift in a shallow sea near the shore line. Since deposition, progressive uplift along the axes of the Sabine Uplift and depression in the East Texas Basin have developed the regional dip of 40 feet per mile, though the sand, no doubt, was laid down on a gentle sloping sea floor dipping away from the Sabine Uplift.

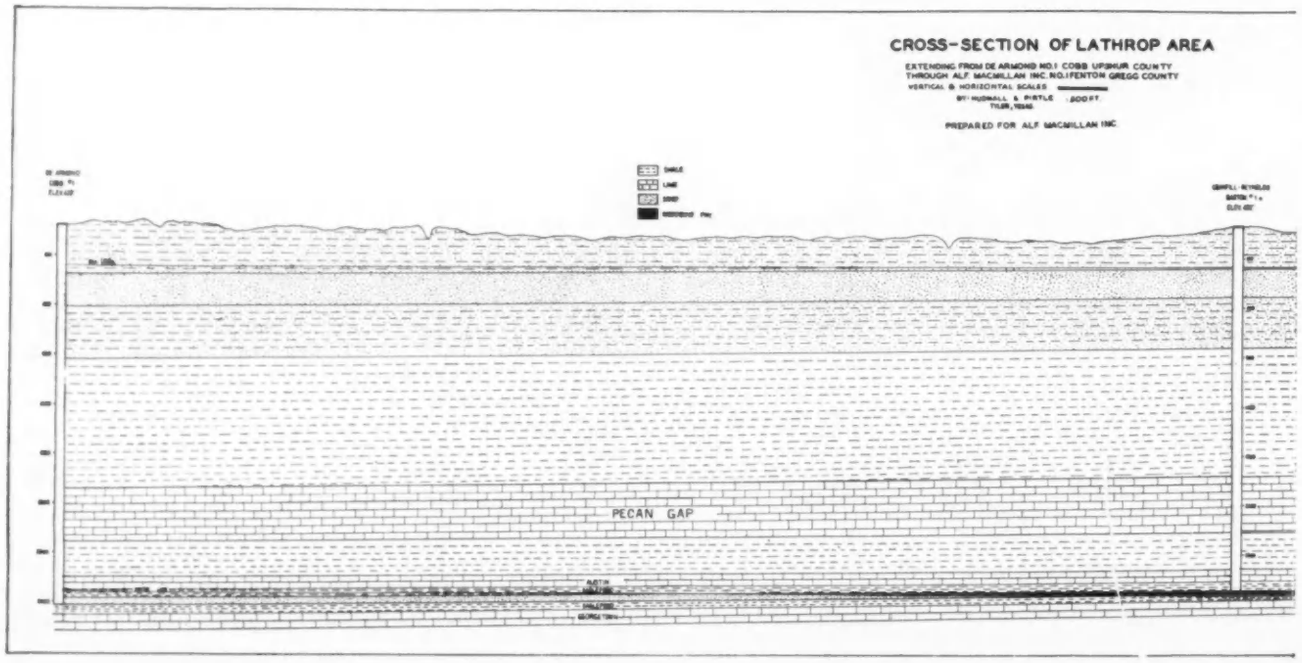
The Woodbine is Eagleford in age and in places has Eagleford shale above and below it. There is an unconformity at the top of the Woodbine. In the eastern part of the field the Austin chalk rests directly on the sand and the sand sometimes is represented by a cherty, limestone conglomerate, as well as volcanic ash. In the vicinity of Gladewater a series of sands are developed representing the same horizon as the one sand along the eastern edge of

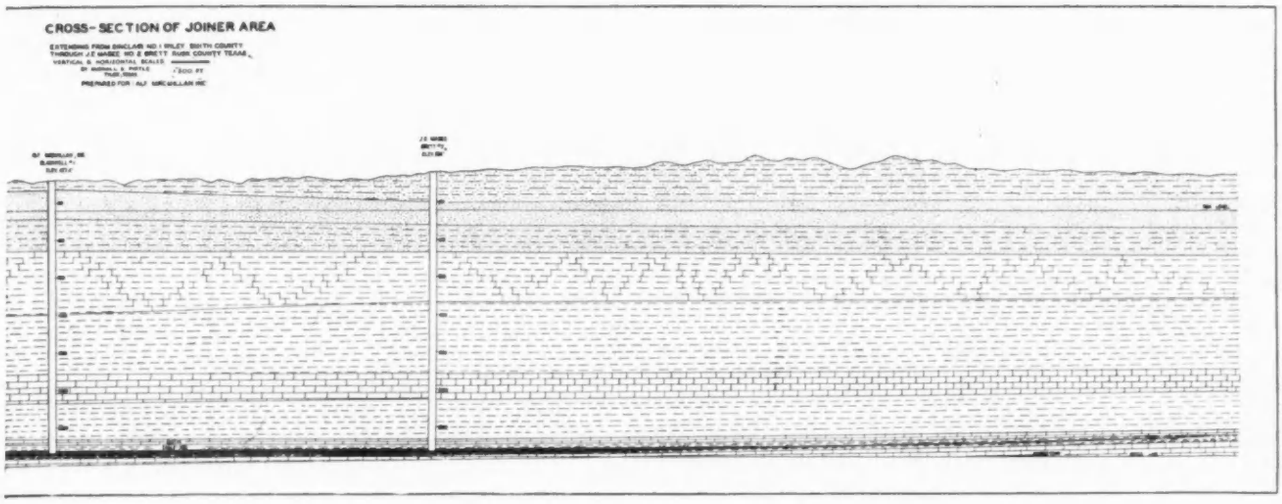


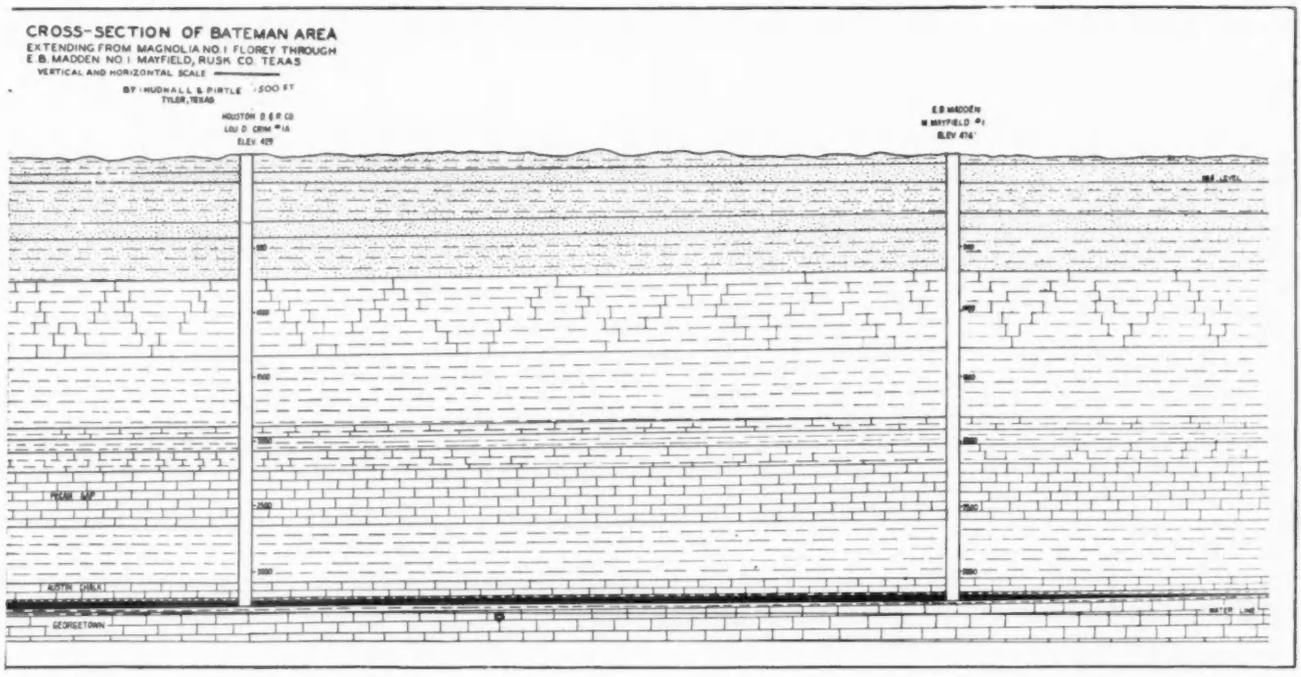
[Cross Sections of Three Important East Texas Areas]

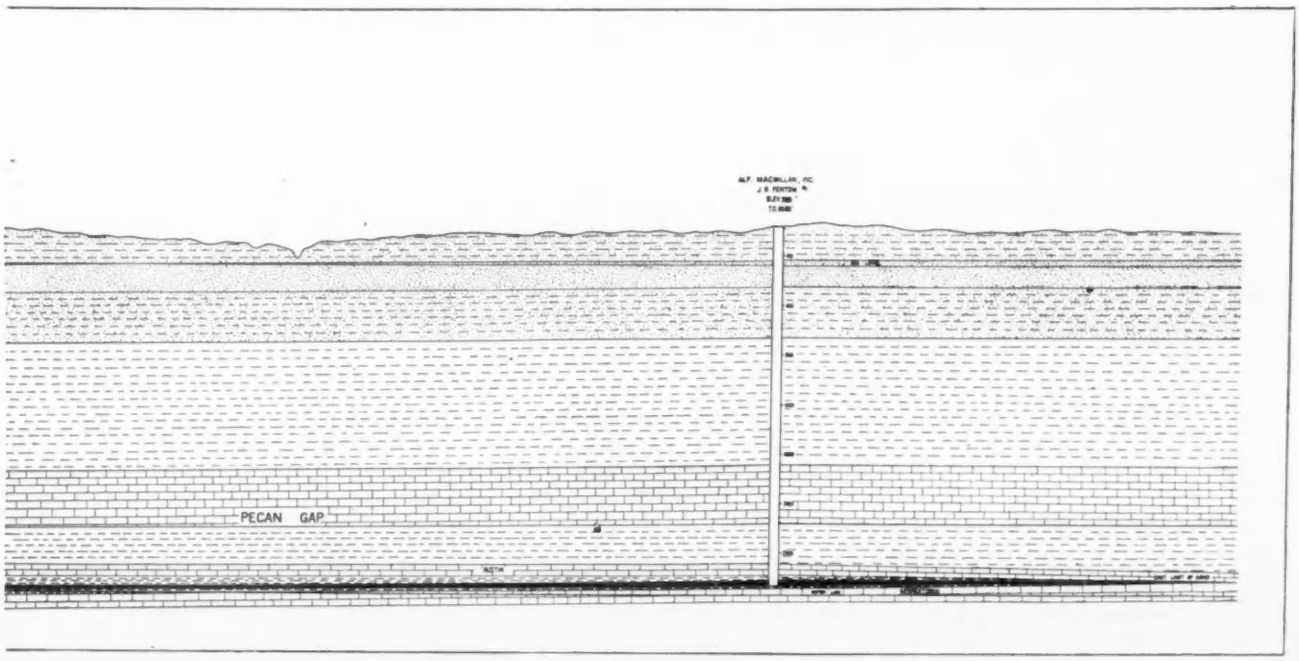







CROSS-SECTION OF JOINER AREA


CROSS-SECTION OF BATEMAN AREA
EXTENDING FROM MAGNOLIA NO.1 FLOREY THROUGH
E.B. MADDEN NO.1 MAYFIELD, RUSK CO. TEXAS
VERTICAL AND HORIZONTAL SCALE
BY HUDNALL & PIRTLE 500 FT
TYLER, TEXAS
E.B. MADDEN
MAYFIELD #1
ELEV. 414'
PECAN GAP
AUSTIN CHALK
GEORGETOWN
WATER LINE

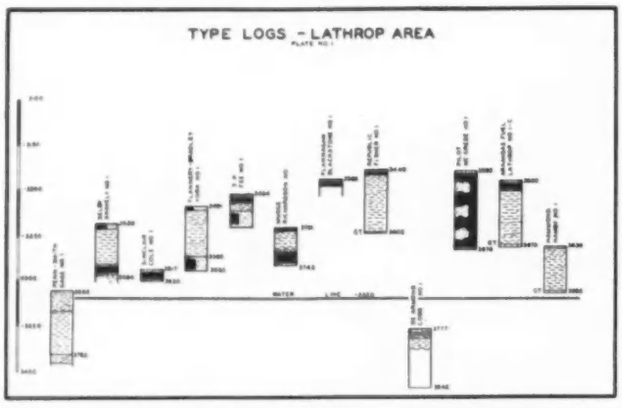

PECAN GAP
AUSTIN

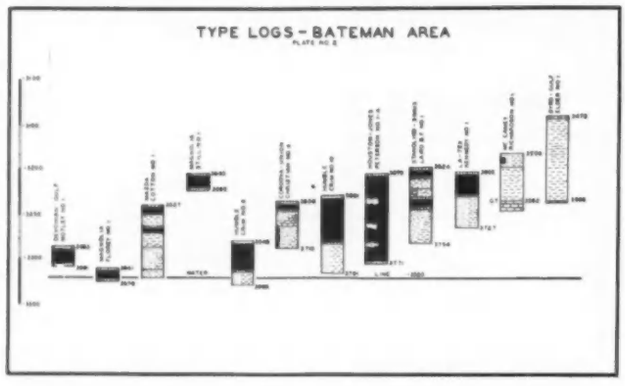
the field. There is a conspicuous red bed lying between an upper and lower sand lens. In the vicinity of Gladewater the production is coming from the lower sand, immediately below the red bed. There is a thick shale series (Eagleford) which lies between the Austin chalk and the Woodbine sand in the western part of the field in the vicinity of Gladewater. A few miles west of Gladewater this shale member is 150 feet thick.

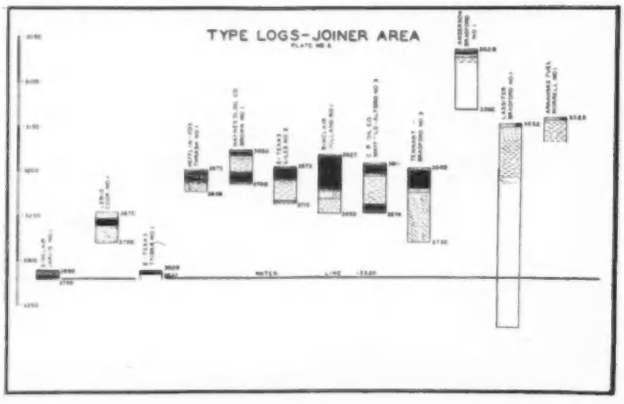
Producing Sand

The producing sand is Woodbine in age. It is a pure, fine grained silica sand, very uniform in the size of the grains and in the western part of the field has many thin shale streaks. The thickness of the sand varies from a few feet on the eastern side to 60 or 70 feet thick about 2½ miles west of the eastern limit of the field in the Lathrop area. The sand reaches its maximum development in the Kilgore area, where it is 100 feet thick, though there are several shale partings perhaps totaling 30 to 40 feet of this 100 feet of thickness. In the Joiner area the sand is 40 to 60 feet thick. The sand will perhaps average 50 feet over the entire producing area with 30 feet of saturation out of the total thickness of 50 feet.

LEGEND







Water Conditions

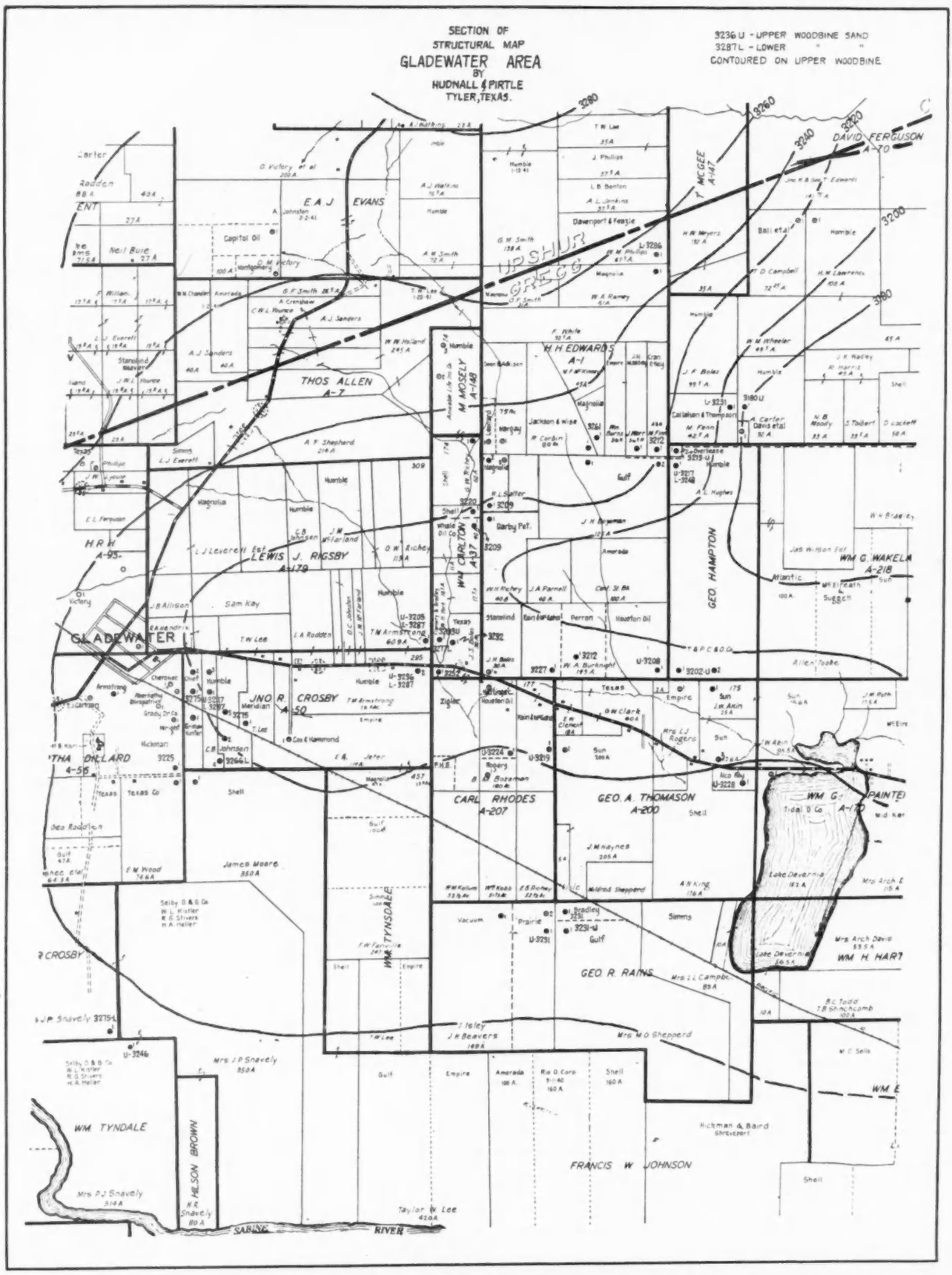
The western one-fourth of the field is underlain by a water table, the average height of which is 3320 sub-sea, though this level varies from 3300 to 3350. This variation may be due to separate lenses having slightly different water levels or to local uplift, since the accumulation occurred. Also the structural height of the eastern limit of the sand and the differential gas pressure in the different parts of the field may effect the level of the oil water contact. The water table seems to be approximately 10 to 15 feet higher in the southern part of the field than it is in the northern part. The water encroachments in the field have been normal and not alarming. The water has not been a serious menace as yet and perhaps will not be until many million barrels of oil have been taken out. Theoretically, the water table should raise its level about one foot for every 30,000,000 barrels of crude taken out, increasing in the rate of rise as the structure is drained. On the same hypothesis the western limit of the oil water contact would migrate eastward at the rate of 132 feet per 30,000,000 barrels of crude extracted. These conclusions are entirely theoretical and may not work at all in practice.

There are a number of wells (approximately 16) which are making appreciable amounts of water at the present; and this number will be greatly increased with more drilling. With careful drilling the water problem will not be a menace for a long time. Great care should be taken in the depth into the sand the wells are drilled, and never should they be drilled deeper than a sub-sea depth of 3300 feet unless it is necessary to drill to a greater depth in order to reach the sand. From one to five feet of sand is sufficient to drain all the oil in the vicinity of the 3300 to 3320 foot contour. The depth drilled into the sand is far more important from the viewpoint of economic operation than the rate at which the wells are produced. Individual wells which are located near the western part of the field and which are immediately underlain by the water table have produced at the rate of 10,000 barrels per day, and with a total recovery of 200,000 barrels, have not produced any appreciable amount of water, while the offsets have produced from one per cent to 10 per cent water, due to the offsets having been drilled 30 feet or more deeper into the sand.

Pressure

The field may be divided into three distinct zones of pressure control.

First, Hydrostatic Zone: A zone lying along the western limit of the field immediately underlain by the water table. This zone covers between one-fourth and one-third of the entire area. Wells in this zone flow almost entirely from water pressure. The pressure is approximately 1600 pounds per square inch in the bottom of the hole and 400 to 500 pounds at the surface. Wells located in the zone are likely to flow 50 per cent or more of their total recovery. The source of this pressure is the weight of a column of water approximately 200 feet above the surface level. The water goes into the beds along their outcrop in the vicinity of Dallas and Fort Worth, where the elevation is approximately 200 feet above the surface in the field. The pressure is transmitted entirely across the East Texas


SECTION OF
STRUCTURAL MAP
GLADEWATER AREA
BY
HUDNALL & PIRTLE
TYLER, TEXAS.
3236 U - UPPER WOODBINE SAND
3287 L - LOWER " "
CONTOURED ON UPPER WOODBINE
GLADEWATER
E.A.J. EVANS
THOS. ALLEN A-7
H.H. EDWARDS A-1
M. MOSELY A-148
H.R.W. A-95
LEWIS J. RAGSBY A-179
JNO. R. CROSBY A-50
WM. CARLTON A-137
GEO. HAMPTON
WM. G. WAKELA A-218
CARL RHODES A-207
GEO. A. THOMASON A-200
GEO. R. RAINS
WM. TYNDALE
FRANCIS W. JOHNSON
HELSON BROWN
DAVID FERGUSON A-70
T. McGEE A-147
SABINE RIVER

Basin. The permiability of the sand will determine the readiness with which the pressure is transmitted.

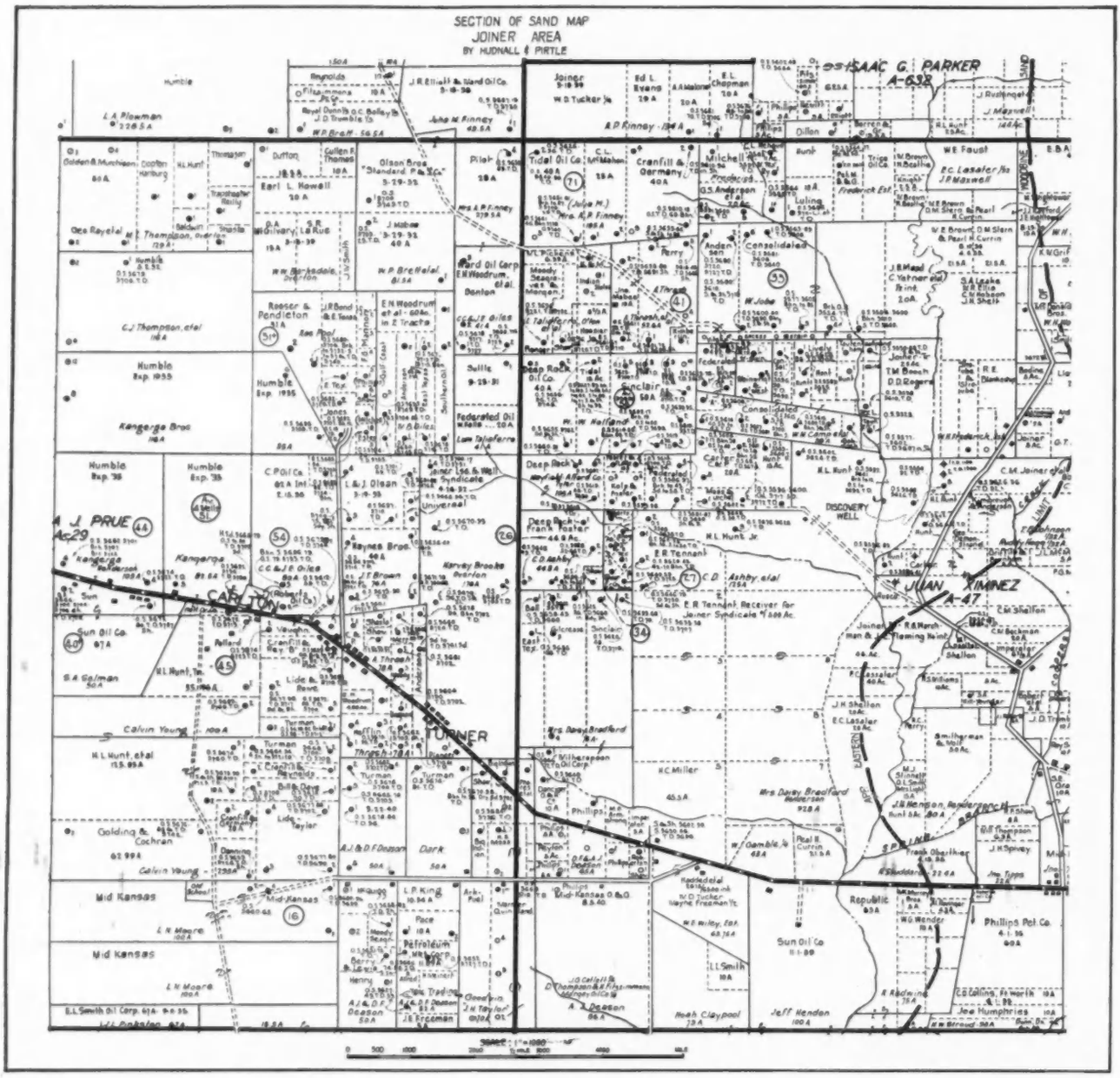
Second, Volumetric? Zone: The second zone lies immediately east of the first (hydrostatic) and comprises an area of approximately one-third of the field. The source of the pressure in this zone is a combination of hydrostatic and gas in which the gas is largely inclusive gas (gas dissolved in oil). Wells located in this zone will have the largest per cent of their recovery during the flowing life of the wells. Individual wells located in this zone have produced 500,000 barrels of oil and are still flowing at the rate of 5000 barrels per day. There has been some diminution of pressure but the pressure readily builds up to within 50 pounds of the original surface pressure when all the wells in the vicinity are closed in. The pressure effect is readily felt in offset and nearby producers when either is permitted to flow open. The predominating pressure in this zone is gas dissolved or inclusive in the oil.

Third, Capillary Controlled Zone?: The east one-third of the field may be classed as a zone where the hydrostatic and gas pressure are insufficient to overcome the capillary attraction of the sand grains. This zone originally had considerable gas pressure but in many cases it has been dissipated and the wells ceased to flow. This area will likely be the least remunerative of the three zones. One hundred twenty wells have ceased to flow in this area. Water may never encroach on this area.

Recovery Estimates

Any attempt at estimating the ultimate recovery in the field at this state of development will necessarily be a guess. However, some facts and data will be herein given. The porosity of the sand has been tested in many places and found to be 20 to 21 per cent. Some estimates of 500 to 1000 barrels per acre foot of sand thickness having been made, perhaps a recovery of 850 barrels per acre foot will serve for tentative estimates. The sand body will perhaps average 50 feet in thickness with 60 per cent of the sand body saturated, making 30 feet of average saturation. This figure will give approximately 25,000 barrels per acre.

A better estimate may be arrived at by using production



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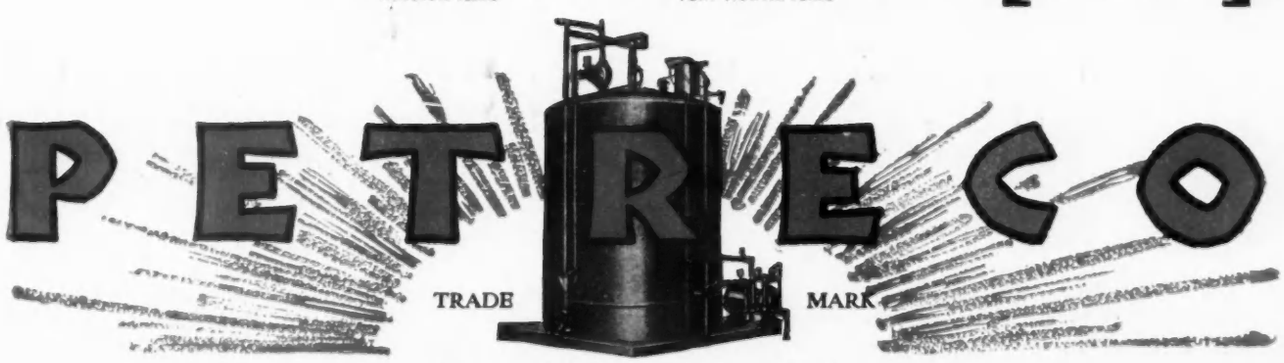
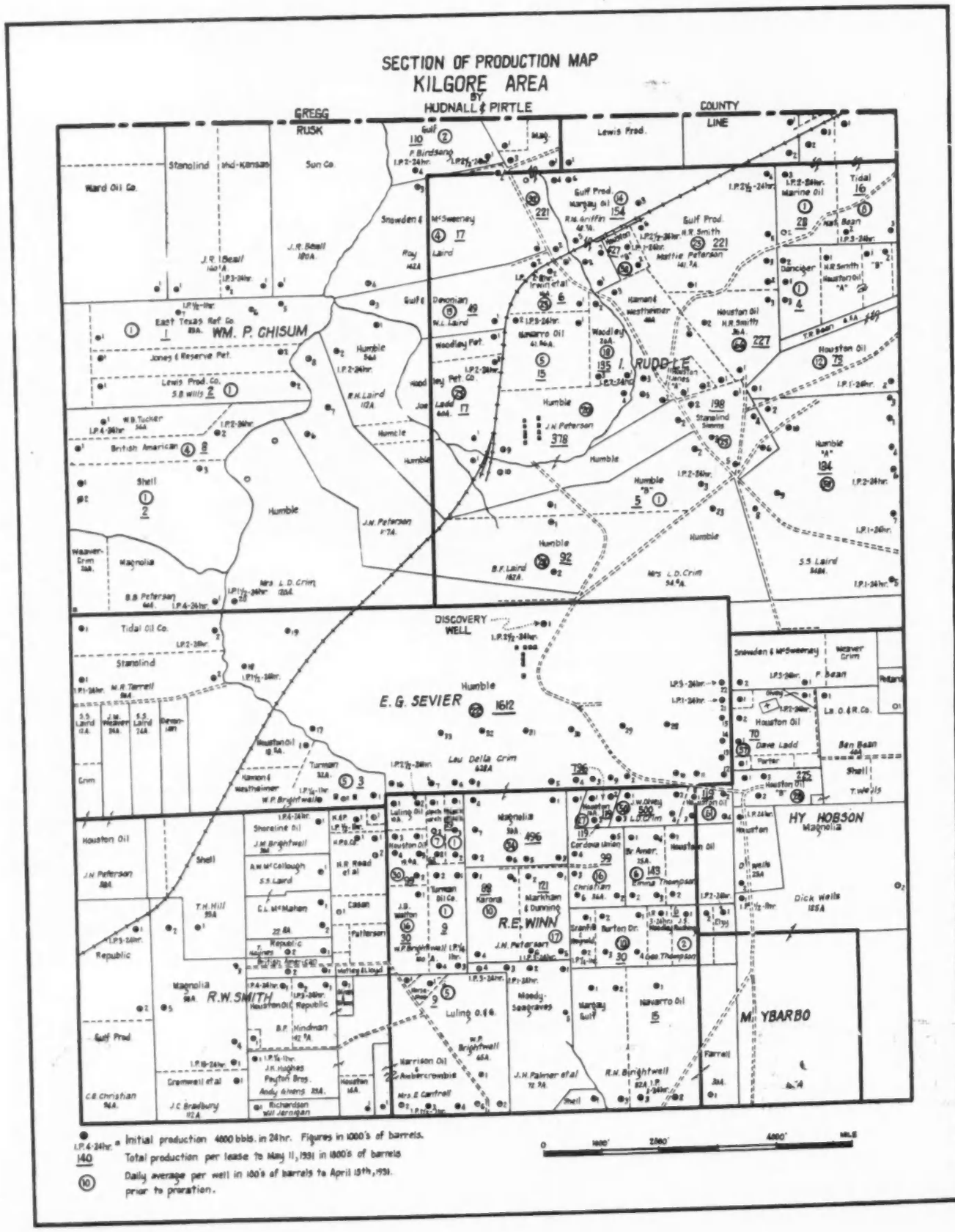


Fully covered by process and apparatus patents.

figures now available. Some large areas as in the Joiner pool have produced approximately 2500 barrels per acre to date and are approximately one-fourth drilled. This area will perhaps yield 10,000 to 15,000 barrels per acre.

Other areas of 500 acres or more in the Kilgore area have produced to date an average of 15,000 barrels per acre. This same area will likely ultimately produce 60,000 barrels per acre. There will be 110,000 acres which will yield approximately 20,000 barrels per acre or 2,200,000,000 barrels and an additional 15,000 acres which will produce 15,000 barrels per acre, making a probable total recovery

(*Continued on page* 114)



East Texas Facilities Could Handle 750,000 Barrels

By H. H. KING
Staff Representative

TRANSPORTATION is being rapidly eliminated as a governing factor in the crude output of East Texas as direct trunk line facilities to distant refining and crude concentration points now exceeds 400,000 barrels daily, while new lines under construction will swell this method of oil movement to about 600,000 barrels daily within 60 days. This type of transportation is supplemented by more than 40 tank car racks now in service on four railroads, while local refinery capacity is now beyond 50,000 barrels daily from 11 operating plants, with new plants under construction that will swell the potential refinery crude demand to more than 70,000 barrels daily. Facilities for the handling of more than 750,000 barrels daily without serious congestion are in sight for this field, which is capable of maintaining such a crude yield for an indefinite period, but it is questionable if such a volume of oil can be absorbed at the various destinations utilized by the tank car shippers and trunk line owners.

Trunk lines are steadily absorbing the bulk of the production increase registered by the district because of much cheaper tariffs applying on such oil movements as compared to tank car shipments. Eleven separate companies have completed, or started actual construction work on trunk lines from the district, with awards made by another company for the pipe and labor for a direct line to the Gulf Coast, but contingent upon an adjustment being made in financial arrangements.

Two major pipe line companies have fortified themselves with about 100,000 barrels of daily trunk line facilities each, and both placed their last units in steady operation last week. Humble Pipe Line Company heads the group with three trunk line units that can easily accommodate 105,000 barrels of oil daily, while Magnolia Pipe Line Company is now operating its second trunk line connection for the field, making a total capacity of 100,000 barrels daily under normal pumping pressure. Both of these companies report capacity loads booked for their lines. Gulf Pipe Line Company was fortunate in having an old system, consisting of three eight-inch and one six-inch lines parallel to the west flank of the field that extends from the Mid-Continent to the Gulf Coast, and has since tied into this system at three different points from the field. The latter company is pumping East Texas crude north and south via its old system, and can easily handle 70,000 barrels daily.

Sinclair-Texas Pipe Line Company is operating a 12-inch carrier from Troup station, located on the southwest edge of the Joiner field, to Colonels station, near Mexia, where connection is made with the Pure Oil Pipe Line Company of Texas' Mexia-Smiths Bluff looped eight-inch line, and the latter also pumps north over Prairie Pipe Line Company's trunk line, Sinclair-Texas Pipe Line Company can handle from 60,000 to 80,000 barrels daily into Colonels station, and shipments are expected to approach such a level when Prairie Pipe Line Company completes work on 157 miles of eight-inch line from Mexia district to Hensley station, Jack County, Texas.

The Texas Pipe Line Company has handled in excess of 55,000 barrels oil daily through its 10-inch trunk line that extends from the Kilgore area due south to Douglas station, Nacogdoches County, where the stream is diverted into an eight-inch line extending to Port Arthur, and also to Mexia district, thence to the coast. Operation of this line has been reduced nearly 50 per cent since July 19 owing to the loss of a mainline station at San Augustine by fire, but repairs are being rushed.

Independent Refiners Participate

Participation by independent refineries in Louisiana and Arkansas of large quantities of East Texas production has been made possible through the eight-inch trunk lines operated by Atlas Pipe Line Company and Arkansas Pipe Line Corporation to points near Shreveport, thence through old lines to leading refining centers in Arkansas. The latter is rated at about 32,000 barrels daily, while Atlas Pipe Line Company is handling between 29,000 and 30,000 barrels daily, mostly on a common carrier basis.

Liberty Pipe Line Company added 22,500 barrels of trunk line capacity to East Texas through the construction of 45.6 miles of eight-inch line from the Kilgore field to Rusk station, Cherokee County, where connection is made with Pure-Van Pipe Line Company's 10-inch carrier that serves the Van field with tidewater connections. Liberty Pipe Line Company has contracted to handle a minimum of 10,000 barrels daily through the latter system, but will operate near capacity as long as the oil is available through controlled oil and common carrier shipments.

Sun Pipe Line Company, East Texas division, is to have in operation before middle August a 10-inch carrier from East Texas to a point near Spindletop, where branches will be made to nearby terminals maintained by Sun Oil Company and Yount-Lee Oil Company, owners of the above line on a 50-50 basis. The north half of this line is scheduled to be filled with crude by August 5 in order to relieve the storage situation in the field. The line will have a capacity of 40,000 barrels daily.

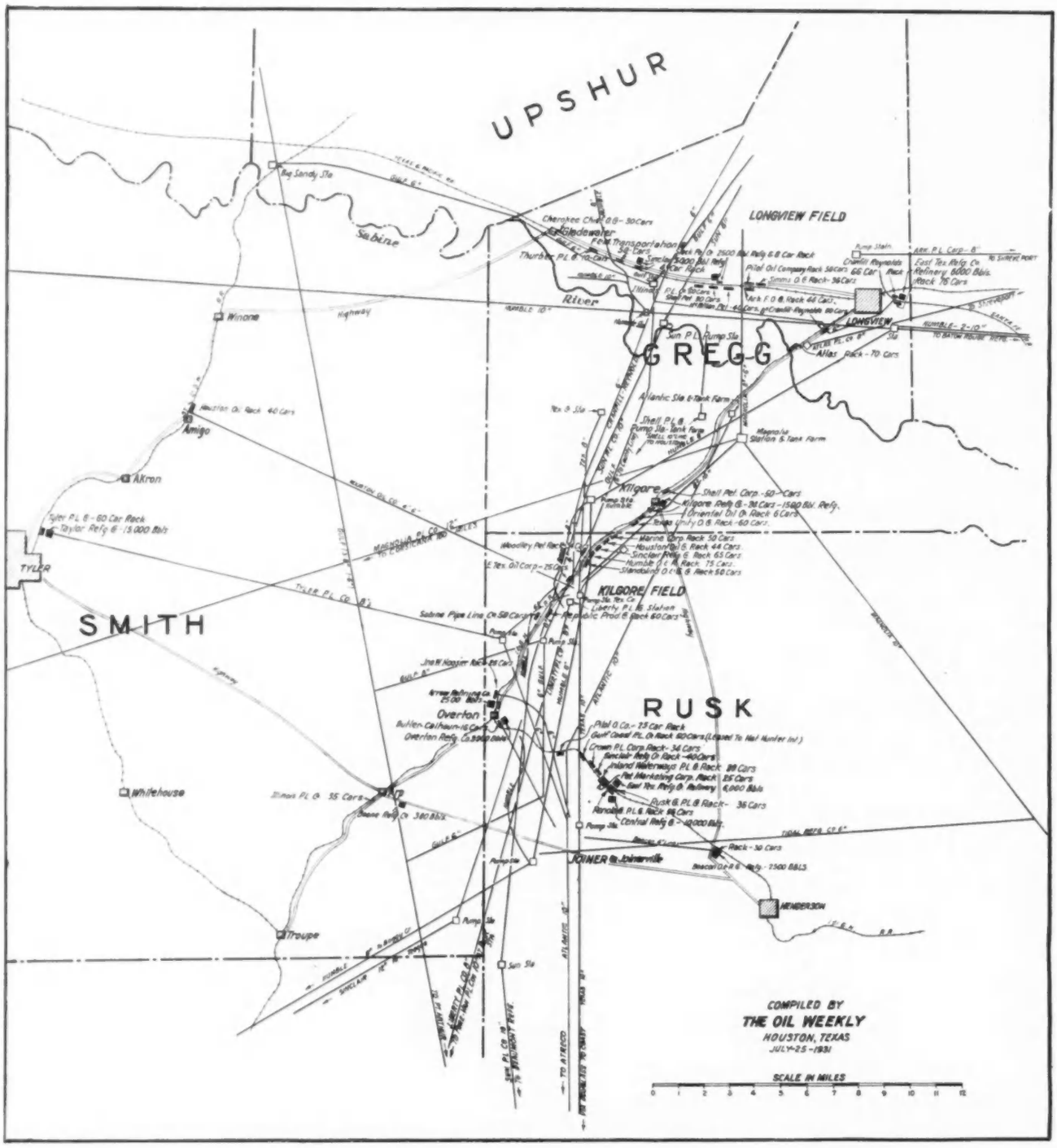
Atlantic Pipe Line Company and Shell Pipe Line Company have started construction work on 10-inch carriers to extend from East Texas to Atreco and Houston, respectively. The former will have only two main line stations at the start, giving it a capacity of 30,000 barrels daily, but other stations may be added if shipments justify the expenditure. Both of these lines will be in operation by the middle of September.

Facilities are available for the handling of a maximum

of 300,000 barrels of crude daily by tank cars from East Texas through the use of the various tank car racks now erected on the I.&G.N., T.&P., Santa Fe and Cotton Belt Railroads. Due to the increased disregard for proration in the district shipments of crude by tank cars soared to a near record in volume late last week, with loadings estimated at more than 800 cars daily. Tank car loadings of crude can be increased to the above maximum if distributed equally among the four lines as racks are available for the spotting of more than 1700 cars at one time.

Expansion of the refining branch of the industry in East Texas is a natural development following in the wake of an abundant supply of high gravity crude being offered at low prices on long time contracts. Independent refiners have been quick to seize the opportunity offered, and now have 11 plants, rated at 69,000 barrels daily capacity, in operation. Only a few of the plants have stepped up their runs to capacity. Fuel oil threatens to hinder plant operations because of the average grade of fuel turned out by these skimming units congealing at 80 to 100 degrees Fahrenheit, depending upon the gravity of the product. The first group of plants to invade the district booked fuel oil contracts with railroads serving such plants over a long period, but renewal contracts will be difficult to obtain because of the trouble experienced in handling the fuel for

(*Continued on page 96*)



Showing facilities for handling 750,000 barrels daily from wells in East Texas

Storage, Tank Car Rack and Pipe Lines in East Texas, July 25, 1931

Steel Tankage

CHEROKEE COUNTY

Owner—	No. Tanks Comp.	No. Tanks Bldg.	Tank Capacity in Bbls.	
Pure-Van Pipe Line Company	2	..	55,000	Rusk Station.

GREGG COUNTY

Arkansas Pipe Line Corporation	2	..	55,000	H. McNutt Survey.
Atlantic Pipe Line Company	.	1	80,000	Horton-Dickson 70-ac., J. W. Whitten Sur.
Atlantic Pipe Line Company	.	4	55,000	Horton-Dickson 70-ac., J. W. Whitten Sur.
Atlas Pipe Line Company	3	..	80,000	John Flourney land, S. P. Ford Sur.
Cranfill-Reynolds Company	5	..	55,000	Mrs. L. C. Calvin land, M. Mann Sur.
Henry H. Cross Company	.	1	80,000	Etex Refining Company's plant.
Humble Pipe Line Company	2	..	64,000	W. H. Owings 21-ac. site, A. R. Johnson Sur.
Humble Pipe Line Company	2	..	37,500	W. H. Owings 21-ac. site, A. R. Johnson Sur.
Humble Pipe Line Company	.	1	80,000	W. H. Owings 21-ac. site, A. R. Johnson Sur.
Humble Pipe Line Company	1	..	55,000	W. C. Alvice Sur., Martin Hays tract.
Mid-Kansas Oil & Gas Company	4	6	55,000	E. M. Nettleton land, John Ruddle Sur.
Magnolia Pipe Line Company	3	2	80,000	J. A. Norris 50-ac. site, G. W. Groce Sur.
Magnolia Pipe Line Company	2	..	55,000	J. A. Norris 50-ac. site, G. W. Groce Sur.
Shell Pipe Line Company	.	3	80,000	R. Smith 50-ac. site, R. H. Foote Sur.
Shell Pipe Line Company	1	..	55,000	H. T. Elder 25-ac. site, M. V. Winkle Sur.
The Texas Pipe Line Company	.	4	80,000	Munro Sta., R. B. Walls 104¼ ac., M. Henson Sur.
Vacuum Oil Company	.	3	80,000	R. B. White 88-ac. site, D. Moore Sur.

NACOGDOCHES COUNTY

The Texas Pipe Line Company	4	..	55,000	David Cook Sur. (Douglas Station).

RUSK COUNTY

Gulf Pipe Line Company	2	..	55,000	Henderson Sta. B. W. Heath & L. Colson Surs.
Houston Oil Company	2	..	55,000	D. M. Peterson 10-ac., I. Ruddle Sur.
Houston Oil Company	2	..	55,000	Smith-Peterson 30-ac., I. Ruddle Sur.
Houston Oil Company	1	..	80,000	Smith-Peterson 30-ac., I. Ruddle Sur.
Humble Pipe Line Company	2	..	64,000	Kangerga Bros. land, M. J. Prue Sur.
Republic Production Company	2	..	80,000	I. H. Scoggins 60-ac., E. Collard Sur.
Rusk County Pipe Line Company	1	..	80,000	N. Carey land, G. W. Guthrie Sur.
Sun Pipe Line Company	4	..	82,000	W. T. Grissom 46-ac. site, J. F. Brown Sur.
The Texas Pipe Line Company	1	..	37,500	Reiber Station, J. Roth Sur.
The Texas Pipe Line Company	.	8	80,000	W. W. Wilson 80-ac. site, Bennett Smith Sur.
Toronto Pipe Line Company	2	..	80,000	Kangerga Bros. land, M. J. Prue Sur.
Tyler Pipe Line Company	1	..	55,000	H. C. Minor 147-ac., Wm. Killen Sur.
Paul Vitek et al	.	..	80,000	Geo. W. Eaton 95-ac., F. Cordova Sur.
Woodley Petroleum Company	1	..	80,000	D. M. Peterson 20-ac., I. Ruddle Sur.
Woodley Petroleum Company	2	..	55,000	Joe Ladd 60-ac., I. Ruddle Sur.
Woodley Petroleum Company	1	..	37,500	Joe Ladd 60-ac., I. Ruddle Sur.

SHELBY COUNTY

Magnolia Pipe Line Company	4	2	80,000	Center Station, Tyler land, Wm. Hamer Sur.
Magnolia Pipe Line Company	2	..	55,000	Center Station, Tyler land, Wm. Hamer Sur.

SMITH COUNTY

Houston Oil Company	2	..	80,000	20-ac. rack site, K. H. Muse Sur., near Amigo.
Sinclair-Texas Pipe Line Company	2	..	80,000	M. C. Thompson land, M. D. L. S. Coy Sur.
Tyler Pipe Line Company	2	..	55,000	Tyler refinery site of Taylor Refining Company.

UPSHUR COUNTY

Gulf Pipe Line Company	1	..	55,000	Big Sandy pump station, M. Ward Sur.
Gulf Pipe Line Company	2	..	37,500	Big Sandy pump station, M. Ward Sur.

Recapitulation East Texas Tankage

County—	No. Tanks Completed	Capacity in Bbls.	No. Tanks Building	Capacity in Bbls.	Total No Tanks	Total Capacity in Bbls.
Cherokee	2	110,000	..	.....	2	110,000
Gregg	25	1,508,000	25	1,750,000	50	3,258,000
Nacogdoches	4	220,000	..	.....	4	220,000
Rusk	24	1,586,000	9	720,000	33	2,306,000
Shelby	6	430,000	2	160,000	8	590,000
Smith	4	320,000	2	110,000	6	430,000
Upshur	3	130,000	..	.....	3	130,000
Total	68	4,304,000	38	2,740,000	106	7,044,000

Tank Car Racks

GREGG COUNTY

Owner—	Railroad Connection	Shipping Point	Rack Capacity in Cars	Size Pipe Line	Location
Arkansas Fuel Oil Company	T&P	Willow Springs	44	6	S of Ry. on Stevens-Lawrence tracts, I. Skillern Sur.
Atlas Pipe Line Company	I-GN	Footes	70	8	John Flourney tract, S. P. Ford Sur.
Cherokee Chief Oil Company	T&P	Gladewater	30	4	N of Ry. on Crosby & Dillard Surveys (E edge town).
Cranfill-Reynolds Company	Santa Fe	Longview Junc't	66	6	J. W. Johnson tract, H. W. Novell Sur.
Danciger-Bell Pipe Line Company	I-GN	Footes	30	6	Refinery rack S. P. Ford Sur, just north Atlas rack, same side railroad.
East Texas Refining Company	Santa Fe	Longview Junc't	76	4&6	SE of Longview.
F. & M. Transportation Company	T&P	Camps	50	6	N side Ry. J. Moseley Sur.
Illinois Pipe Line Company	T&P	Camps	50	6	E. M. Nettleton tract, J. Ruddle Sur.
Kilgore Refining Company	I-GN	Kilgore	24	4	SW edge Kilgore.
Macmillan Petroleum Corporation	T&P	Willow Springs	40	4	M. Smith 30-ac. site, I. Skillern Sur.
Oriental Oil Company	I-GN	Kilgore	6	4	SW of Town.
Pilot Oil Company	T&P	Willow Springs	50	6	Protho-Moore tracts, I. Skillern Sur.
Shell Petroleum Corporation	T&P	Camps	30	6	E. M. Nettleton tract, J. Ruddle Sur.
Shell Petroleum Corporation	I-GN	Kilgore	50	6-8	Utzman tract, M. V. Winkle Sur.
Simms Oil Company	T&P	Willow Springs	36	(2) 4	Toler 13.4-ac. site, I. Skellern Sur.
Sinclair Refining Company	T&P	Camps	4	..	Refinery rack.
Slack Petroleum Company	T&P	Camps	8	..	M. Smith tract, I. Skillern Sur.
Texas-Unity Oil Company	I-GN	Kilgore	60	4	SW of Kilgore, M. V. Winkle Sur.
Thurber Pipe Line Company	T&P	Gladewater	10	4	E. G. Richey tract, Carl Rhodes Sur.

(See Next Page)

Tank Car Racks—*(Continued)*

RUSK COUNTY

Beacon Oil & Refining Company	I-GN	Friar	26	4	J. H. Allen tract, T. Brown Sur., 4 mi nw Henderson.
Butler & Calhoun Company	I-GN	Overton	16	4	SE of Overton.
Constantine Refining Company	I-GN	Overton	12	..	Refinery rack se Overton.
Crown Pipe Line Corporation	I-GN	Friar	34	6	Friar tract, T. H. Smith Sur., 5 mi. se Overton.
Central Refining Company	I-GN	Friar	40	..	Refinery rack.
Etex Oil Corporation	I-GN	Reeds	25	4	Crim tract, E. G. Sevier Sur.
John W. Hooser (Central)	I-GN	Overton	25	6	Bacon tract, T. C. Lloyd Sur.
Houston Oil Company	I-GN	Kilgore	44	6	Jones-Peterson, 10-ac. lse., I. Ruddle Sur., 2½ mi. sw Kilgore.
Humble Oil & Refining Company	I-GN	Kilgore	75	4&6	NWc J. N. Peterson tract, I. Ruddle Sur., 3 mi. sw Kilgore.
Nat Hunter Int. (Gulf Coast Pipe Line Company)	I-GN	Friar	50	4	Thos. Smith Sur., 5 mi. se Overton.
Inland Waterways Pipe Line Company	I-GN	Friar	30	(2) 4	Robertson tract, H. Henderson Sur., 6.2 mi. SE Overton.
Marine Corporation	I-GN	Kilgore	40	4	Nat Bean 54-ac. I. Ruddle Sur. 1.9 mi sw Kilgore.
Overton Refining Company	I-GN	Overton	15	..	Refinery rack.
Panola Pipe Line Corporation	I-GN	Friar	56	4&6	N. Carey tract, G. W. Guthrie Sur. 6½ mi se Overton.
Petroleum Marketing Corporation	I-GN	Friar	25	6	N. L. Marwill tract, B. Smith Sur. 6.2 mi se Overton.
Pilot Oil Company	I-GN	Norfolk	25	4	N end E. S. Thrash 146-ac. tract, F. Cordova Sur.
Republic Production Company	I-GN	Reeds	50	4&6	N end C. E. Christian 110-ac. tract, R. W. Smith Sur., 6 mi. sw Kilgore.
Rusk County Pipe Line Company	I-GN	Friar	36	4&6	N Carey tract, G. W. Guthrie Sur. 6.5 mi se Overton.
Sabine Oil & Pipe Line Company	I-GN	Reeds	50	4	Christian tract, W. R. Cook Sur. 6½ mi sw Kilgore.
Sinclair-Texas Pipe Line Company	I-GN	Friar	40	6	W. L. Friar tract, H. Henderson Sur., 6 mi se Overton.
Sinclair-Texas Pipe Line Company	I-GN	Kilgore	65	6	Due n of Humble's rack, I. Ruddle Sur., 2.8 mi. sw Kilgore.
Stanolind Oil & Gas Company	I-GN	Kilgore	50	4	I. Ruddle Sur.
Toronto Pipe Line Company	I-GN	Overton	50	4&6	1½ mi. n of Overton.
Witherspoon Oil Company	I-GN	Overton	25	6	½ mi. se Overton.
Woodley Petroleum Company	I-GN	Kilgore	34	4	Joe Ladd tract, I. Ruddle Sur.

SMITH COUNTY

Houston Oil Company	Cotton Belt	Amigo	40	4&6	K. H. Muse Sur., n edge Amigo and 7 mi. ne Tyler.
Illinois Pipe Line Company	I-GN	Arp	36	4&6	J. H. Murph tract, Jas Jordan Sur. ½ mi. sw Arp.
Tyler Pipe Line Company	Cotton Belt	Tyler	60	8	Adjacent Taylor Ref. Co.'s plant, near Tyler.

Trunk Pipe Lines

Owner—	Number Line	Size	Stations	Total Miles	Daily Capacity in Bbls.	From—	To—
Arkansas Pipe Line Corporation		8	2	68.6	32,000	Longview field Station, H. McNutt Sur., near Longview	to Shreveport.
Atlantic Pipe Line Company		10	2*	182	30,000	Kilgore field Station on Horton-Dickson 70-ac. site, J. W. Whitten Sur,	to Atreco, near Beaumont.
Atlas Pipe Line Company		8	2	57	32,000	Longview field Station, on John Flourney land, S. P. Ford Sur.,	to Jewella, La.
Gulf Pipe Line Company		6	1	12	20,000	Kilgore field Station, on W. F. Florence 147-ac. tract, Jas. S. Whiteman Sur., ne Overton, thence sw via Joiner	to connect with Mid-Continent system on Hardy & Pitts 244-ac. tract, M. G. Henriquez Sur., Smith Co.
Gulf Pipe Line Company		8	1	8	30,000	Kilgore field Station, thence direct sw	to connect with Mid-Continent system on N. Williams 132-ac. tract, John Pate Sur., Smith County.
Gulf Pipe Line Company		6	1	16½	20,000	Longview field Station on M. O. Shepperd 369½-ac. tract, G. R. Rains Sur., thence nw	to connect with Mid-Continent system at Big Sandy Station on M. Ward Sur., Upshur County.
Humble Pipe Line Company		10	3	60	45,000	Longview field Station, on M. Hays tract, near c of w line W. C. Alvice Sur., thence due e via Longview Station on Owings 21-ac. site, A. R. Johnson Sur.	to Louisiana border, where delivers to Standard Pipe Line Company.
Humble Pipe Line Company		8	1	13	25,000	Kilgore field Station on Muckelroy 10.33-ac. site out of 100-ac. tract, J. S. Carruthers Sur.,	to Longview Station on W. H. Owings tract, A. R. Johnson Sur., where delivers to Van-Louisiana 10-inch line.
Humble Pipe Line Company	(2)	8	2	39	35,000	Joiner field Station, on Kangerga land, M. J. Prue Sur., thence sw	to Todd Station, Boggy Creek field, thence via Grosebeck to Coast. (Line doubled to Todd Station for 28 miles and for 56.81 miles between Todd and Grosebeck Stations).
Liberty Pipe Line Company		8	1	45.6	22,500	Kilgore field Station on Brightwell-Palmer 88-ac. tract, R. E. Winn Sur.,	to Rusk Sta., Cherokee County, on Pure-Van Pipe Line Company's 10-inch line to Smiths Bluff.
Magnolia Pipe Line Company		12	2	100.5	55,000	Kilgore field Station, on J. A. Norris 50-acre site, G. W. Groce Sur.,	to Corsicana Station on Mid-Continent-Beaumont system.
Magnolia Pipe Line Company		10	2	59	45,000	Kilgore field Station, on J. A. Norris 50-acre site, G. W. Groce Sur.,	to Center, Shelby County, on Arkansas-Beaumont system.
Shell Pipe Line Company		10	*	198	40,000	Kilgore field Station, on R. Smith 50-acre site, Robt. H. Foote Sur.,	to Shell Petroleum Corporation Refinery at Houston.
Sinclair-Texas Pipe Line Company		12	2	85	60,000	Joiner field Station, on M. Thompson land, M. D. L. S. Coy Sur., Smith County,	to Colonels Sta., near Mexia, where connect with Prairie Pipe Line Company's Mid-Continent-Smiths Bluff system.
Sun Pipe Line Company		10	4*	200	40,000	Longview field Station, on Moses Thomas 30-acre site, P. McAnulty Sur., via Joiner field Station, on W. T. Grissom 46-acre site, J. F. Brown Survey	to Spindletop, where line branches to terminals of Yount-Lee Oil Company & Sun Oil Company.
The Texas Company		10	2	51	55,000	Kilgore field Station, on C. O. Christian 3-acre site out of 110-acre tract, R. W. Smith Sur. A-762, near Reeds Switch,	to Douglas Station, in D. Cook Sur., Nacogdoches County, where divert into eight-inch line moving oil west and southeast in reaching Gulf Coast.
Texas-Independent Pipe Line Co.		10	5†	200	45,000	Longview field Station, on Bumpass 25-acre site, W. H. Castleberry Sur., via Kilgore and Joiner areas	to Norsworthy on Houston Ship Channel.

*Building.
†Authorized.

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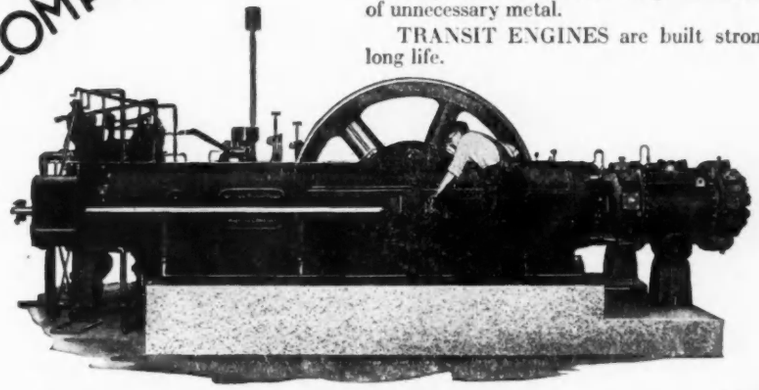

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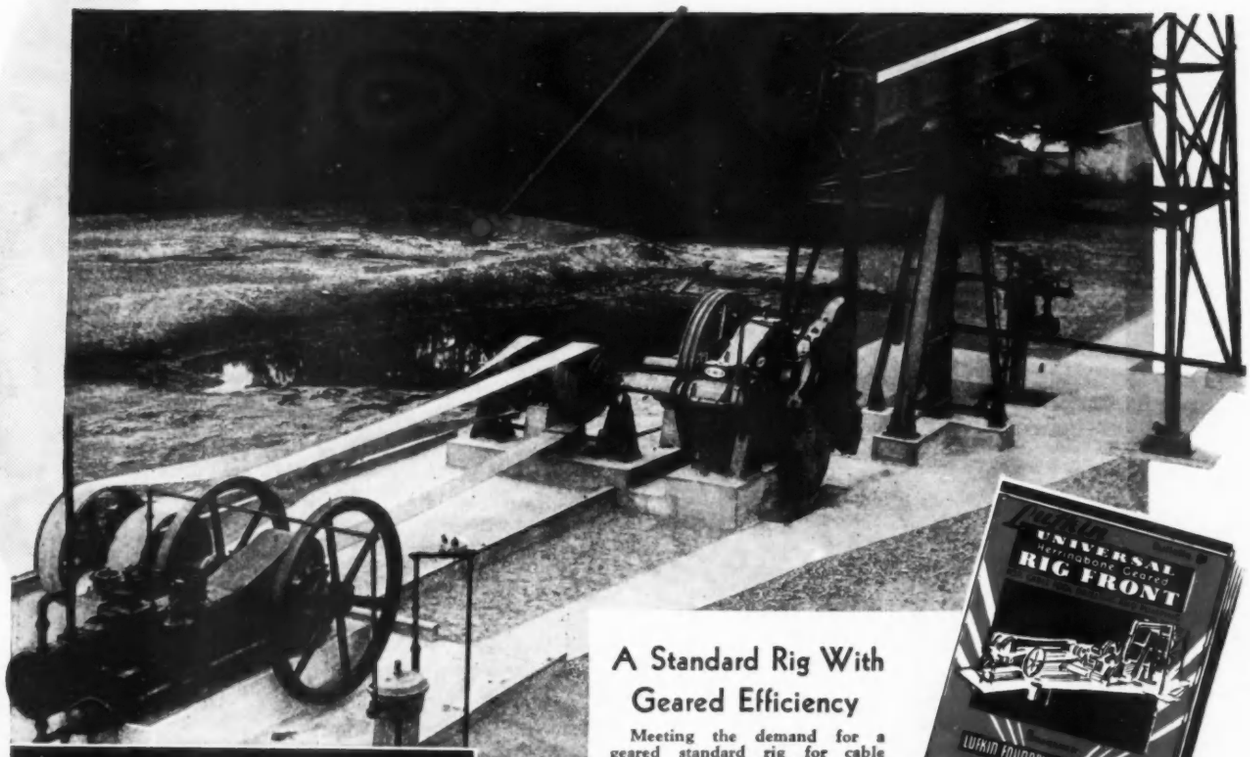

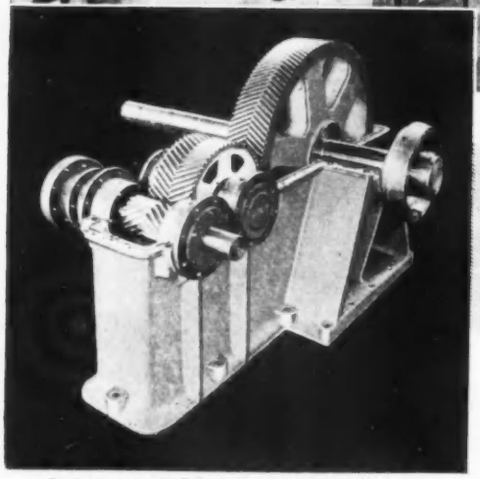

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Woodbine Sand Production In

East Texas Compared With Fault Zone Pools

Recovery per acre in new area expected to be lower; different conditions from those of Mexia-Powell district necessitate unlike development and production practices.

By JACK LOGAN
Staff Representative

THE large oil field of Rusk, Gregg, Smith and Upshur Counties, Texas, being located in the east portion of the state, along the eastern edge of the East Texas Basin, and its productive horizon having been identified as Woodbine sand or as re-worked Woodbine, it was but natural for those interested to begin early making comparisons of the new field with the fields of the Mexia-Powell fault zone. The latter, including Powell, Richland, Currie, Wortham, Mexia and several other fields of lesser importance, are located in Central East Texas along the western edge of the East Texas Basin, and their production has also been principally from the Woodbine sand. It was at Mexia, in fact, that the first Woodbine production of eastern Texas was developed. Location of the East Texas field with respect to the fault zone fields is shown on an accompanying map.

Early in the history of the new East Texas field producers and prospective producers began to say: "Remember Wortham and Powell—the Woodbine oil comes fast and is soon gone, and the well which is late reaching the sand must forfeit dearly to offset producers." The pumping equipment men appeared early to lay the foundation for impending business, saying proverbially, "You know the history of the Woodbine sand—soon the whole field will be pumping, and there will be an ocean of salt water coming up with the oil." Engineers attending the American Petroleum Institute meeting at Dallas in June speculated in unprecedented suggestions as to means for handling the tremendous volume of water anticipated in the vast field within the near future, discussing special pipe lines to the Gulf of Mexico for disposing of it, and calculating that a drainage ditch 30 feet wide and three feet deep would be required to carry off the 2,500,000 barrels of salt water daily to be expected from at least 5,000 wells which are conservatively foreseen, and which are expected to be yielding 500 barrels of water daily each by the middle of 1932.

Plugging back to alleviate water intrusion has already been tried with success in the East Texas field, the operators remembering the good results of that nature which were obtained at Powell and in other fields of the fault zone district, and profiting by the knowledge gained in those older fields.

In view of the similarities between the big East Texas field and the pools of the Mexia-Powell district, there will be presented herewith a discussion of the East Texas area from the standpoint of comparison with those fault zone fields. Similarities and also marked differences will be pointed out, and for convenient reference there are accompanying tabulations of material on the fault fields.

While the East Texas field has certain similarities and analogies to the fault fields, there are also important differences which have direct bearing on such practical factors as recovery per acre, proper spacing of wells, and economical development and production practices. A review of the histories of the fault zone fields as a means toward predicting the history of the East Texas field, therefore, must be tempered with discrimination. All comparisons must be applied with due care and reservations, and conclusions must be drawn only after thorough deliberation and consideration of all the facts involved.

Productive Area

AN outstanding difference between the East Texas field and either of the Mexia-Powell district fields is the predominantly greater size of the former. The proven area in the East Texas field is approximately 110,000 acres, its length from north to south being 33 miles, with possibilities of further extensions at both ends, and the width, from east to west, ranging from three to eight miles.

Mexia, the largest of the fault zone fields has only 3720 productive acres, with length of seven miles and maximum width of 6600 feet, and the other pools of that district range down in size to Cedar Creek, which has 30 proven acres, length of 2000 feet and maximum width of 1000 feet. All the fields of the district if placed end to end would have total length of only 26 miles, and their average width is approximately one-half mile. They have combined productive area of 8320 acres, an area representing only 13 per cent of the 110,000 acres of proven territory in the East Texas field. In detail, the above facts on the fault zone fields and on the East Texas field are herewith tabulated:

Field.	Length (miles).	Maximum width (feet).	Productive area (acres).
Mexia	7	6,600	3,720
Powell	7 3/4	4,000	2,650
Wortham	4	2,000	715
Currie	2	3,000	420
North Currie	2	2,000	375
Richland	1 1/2	2,000	240
Nigger Creek	1 1/2	1,300	170
Cedar Creek	2/5	1,000	30
Total	26	...	8,320
East Texas Field	33	8 miles	(apprx.) 110,000

Type of Structure

Aside from its much greater size, the East Texas field

▲ COMPARATIVE DATA ON FIELDS OF THE MEXIA-POWELL FAULT ZONE DISTRICT, EAST CENTRAL TEXAS ▲

FIELD	Length miles	Maximum width, ft.	Productive acres	Av. thickness of pay sand, feet	Number productive oil wells	Production to end of 1930	Recovery per acre to 1931 barrels	Recovery per well, to 1931, barrels	Recovery per acre, to 1931, barrels	Peak yearly Production barrels	Peak Daily production barrels	Daily production and number of wells as of June 1 1931
Cedar Creek	2/5	1000	30	.....	.....	296,331	9,877	.....	987	151,313	.....	.....
Currie	2	3000	420	.....	.....	5,467,219	13,017	.....	.....	2,005,012	.....	29 wells: 250 bbls.
Mexia	7	6600	3720	.....	643	89,274,593	23,998	138,840	.....	33,937,513	176,000	246 wells: 3350 bbls.
Nigger Creek	1½	1300	170	16	79	2,957,973	17,811	37,442	1113	1,585,470	22,085	5 wells: 150 bbls.
North Currie	2	2000	375	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Groesbeck (Gas)	1	2500	330	.....	.....	.....	.....	.....	.....	.....	.....	.....
Powell	7½	4000	2650	45	935*	104,667,347	39,497	111,943	877	32,976,381	356,000	493 wells:4200 bbls
Richland	1½	2000	240	.....	93	6,633,216	27,638	70,679	.....	3,455,523	.....	38 wells: 100 bbls.
South Groesbeck (Gas)	1½	3500	380	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wortham	4	2000	715	.....	355	22,081,921	30,883	62,202	.....	15,942,142	182,830	120 wells: 500 bbls.

*Includes approximately 675 Woodbine sand wells and 260 shallow sand wells.

offers an outstanding difference from the fault district fields with respect to the structure responsible for the oil accumulation.

Located along the western rim of the East Texas Basin, a former arm or extension of the Gulf of Mexico, the fields of the Mexia-Powell district owe their existence to a line of faulting, the Mexia-Powell fault zone. That fault zone, extending in a northeasterly-southwesterly direction, lies about 35 miles east of and parallel with the Balcones fault zone, to which it is related. The Balcones faulting is regarded as a primary fracture, due to slippage of sediments toward a great depression, the Sigsbee Deep, in the Gulf of Mexico, the downthrow being toward the east. The Mexia-Powell fault zone, in turn, is regarded as having been formed as a secondary effect of that original major fracturing or relieving of tension, and it is characterized by downthrow of the sediments to the west.

Described in more detail, Mexia, Powell, Wortham and the other fields of that district are folds flanking the large fault which has been mentioned and which has several hundred feet displacement. The fold is usually an anticline, with the fault cutting across it roughly along its axis, so that the west half of the anticline is thrown down. The oil accumulation is on the eastern portion of the fold, on the upthrow side of the fault, the Woodbine pay sand as shown by well records being in position against impervious formations which have been thrown down from higher levels.

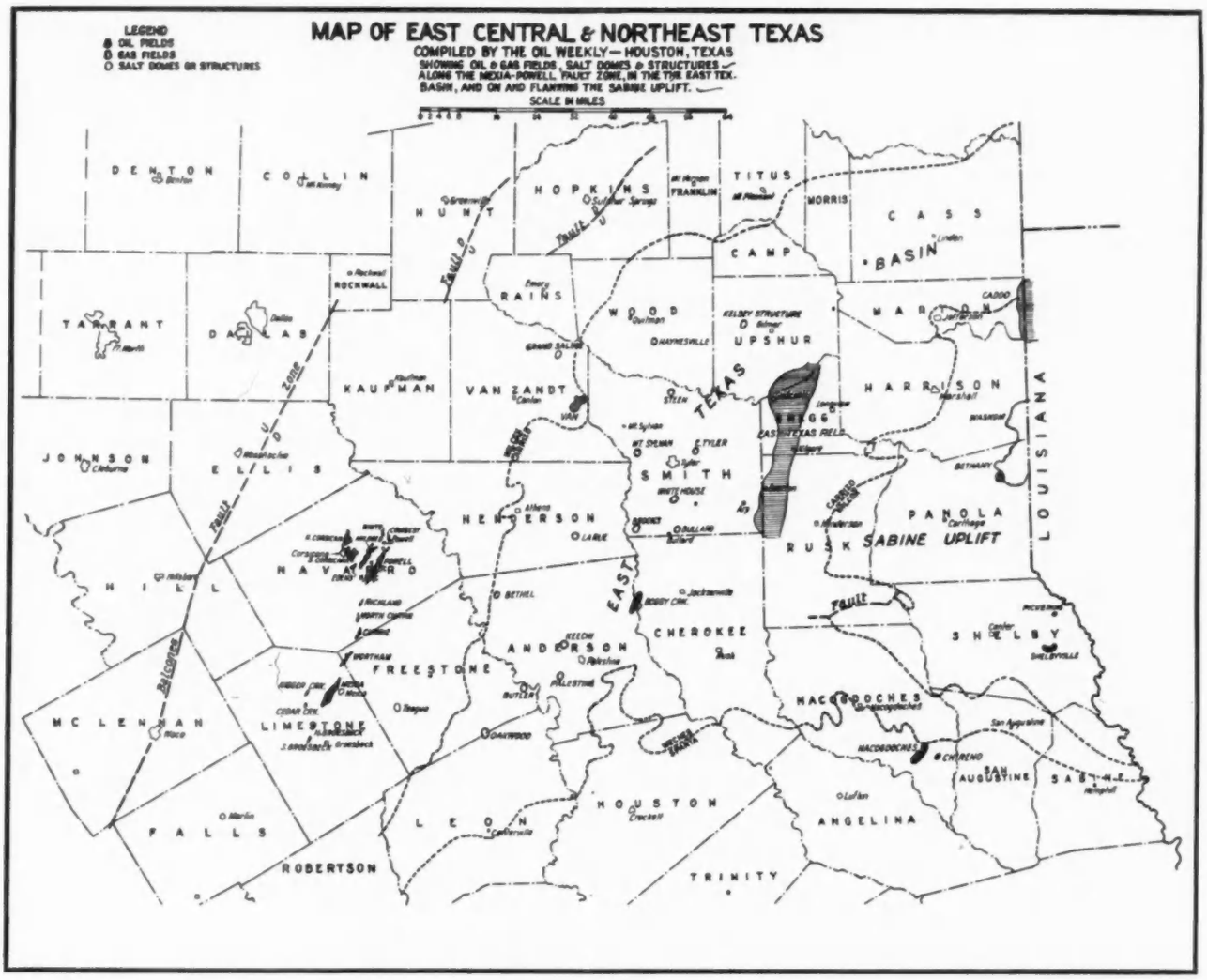
The East Texas field, lying in Rusk, Gregg, Smith and Upshur Counties, is on the opposite side of the East Texas Basin from the fault fields, and the accumulation of oil is not related to faulting, apparently. It is due to pinching out of the oil sand on the east edge of the field, as explained in detail in THE OIL WEEKLY in the March 6, 1931, issue, page 41, the sand having been deposited on the eastward advancing shore line of the East Texas Basin as the Woodbine sea spread up around the Sabine Uplift. With the wearing down of the land of the Sabine Uplift and continued advance of the sea toward the east, the sand was laid down in diminishing thickness until the deposition ceased entirely. Where the deposition ended the sand was later covered with other sediments, and along that ancient shore line of the East Texas Basin is the eastern limit of the present East Texas field. From zero on the east the Woodbine sand increases in thickness toward the west until it is several hundred feet thick in the middle of the East Texas Basin. On the east is the accumulated oil, sealed in the Woodbine sand between the underlying hard lime and the overlying shale and chalk, and held there by salt water which lies farther west and lower in the Woodbine sand, ready to inundate the space occupied by the oil when the crude is removed by the East Texas operator. The western boundary of the field lies, consequently, along the oil-water contact, and wells drilled farther west produce water instead of oil from the Woodbine sand.

Structural Relief

Despite their small widths as previously listed, the fault district fields were characterized by relatively large structural relief, the oil-water contacts at Powell and Mexia being about 175 feet below the crests of the structures, while the other fields of that district had average relief of about 50 feet. The structural relief of the East Texas pool is relatively small in comparison, amounting to only about 150 feet, although the field ranges in width from three to eight

▲ PRODUCTION FROM WOODBINE SAND FIELDS, EAST CENTRAL TEXAS ▲

YEAR	Boggy Creek Discovered 3-21-27	Cedar Creek Discovered 8-24-27	Currie Discovered Oct. 1921	Mexia Discovered 11-25-20, but early dev. slow	Nigger Creek Discovered 7-8-26	Powell Deep Sand found 1-7-23 shallow Oil earlier	Richland Deep Sand found Dec. 1923; shallow Oil earlier	Van Discovered 10-14-29	Wortham Discovered 11-22-24	Total All Fields
1921	.....	.....	.....	5,783,236	.....	.....	.....	.....	.....	5,783,236
1922	.....	.....	1,339,226	33,937,513	.....	.....	24,757	.....	.....	35,301,496
1923	.....	.....	1,688,225	18,054,276	.....	29,971,589	52,844	.....	.....	49,766,934
1924	.....	.....	908,832	10,466,567	.....	32,976,381	3,455,523	.....	888,856	48,696,159
1925	.....	.....	470,288	6,700,466	.....	17,095,301	1,805,096	.....	15,971,125	42,042,276
1926	.....	.....	334,529	4,769,731	1,572,949	10,022,324	584,587	.....	2,791,123	20,075,243
1927	14,760	86,315	248,792	3,622,390	972,279	5,839,108	312,922	.....	1,134,222	12,230,788
1928	325,744	151,313	196,446	2,517,744	221,848	3,949,247	194,321	.....	647,472	8,204,135
1929	1,132,130	40,758	158,361	1,908,247	119,127	2,776,615	131,626	150,068	410,810	6,827,742
1930	1,153,359	17,945	122,520	1,514,423	71,770	2,036,782	71,540	7,530,727	288,164	12,807,230
TOTAL	2,625,993	296,331	5,467,219	89,274,593	2,957,973	104,667,347	6,633,216	7,680,795	22,131,772	241,735,239



miles, the highest points in the pay sand being around 3,175 feet below sea-level, with the original oil-water contact in the west part of the field around 3,325 feet sub-sea.

Age of Producing Sand

While the principal pay sand of the Mexia district fields is the true Woodbine sand, there was considerable debate among geologists and paleontologists in the early history of the East Texas field as to the age of the producing sand there, some contending it was Woodbine, others that it was Tokio, and some defining it as the shore phase of Eagle Ford or Austin. Subsequent development has revealed that there are really two separate sands in a large part of the field, separated by a thin shale break, the lower sand being the true Woodbine, and the upper sand being re-worked Woodbine representing the basal part of the Austin formation, as evidenced by instances of wells going directly from the Austin chalk into the first sand. The shale break represents the Eagle Ford formation. Eagle Ford has been definitely identified in several wells, including Selby Oil & Gas Company's P. J. Snaveley 1 and Frank Foster's Rodden 1, both in the Longview-Gladewater or northern district of the East Texas field. The shale break between the two separate pay horizons is also found regularly in the Joiner district, which constitutes the southern portion of the East Texas field. In the Kilgore (central) district of the large East Texas field the formations dip more steeply to the west, and the two pay sands of the Joiner and Longview districts are merged into a single sand, affording unbroken sand sections there of 90 to 100 feet in some wells.

When only a few wells had been drilled, and when the age of the oil sand was still highly debatable, it was argued that the formation, considered by some geologists as Tokio, did not offer prospects of very high recovery per acre, particularly as compared with Powell, Mexia and Wortham, based upon the histories of North Louisiana fields which have had relatively low recovery per acre from the Tokio. Identification of at least the lower part of the pay sand as the true Woodbine, however, has lent support to the other factors suggesting a relatively high recovery per acre for the East Texas field.

Recovery Per Acre

The above discussion leads logically to consideration of probable oil recovery per acre in the East Texas field, as compared with the yields in the fault zone fields. Considering all the factors involved, it is to be expected that the ultimate recovery for the East Texas field as a whole will be from 15,000 to 20,000 barrels per acre, using conservative figures. Due largely to smaller average sand thickness in the East Texas pool, around 25 feet, this estimate represents a considerably lower yield than the average per acre already produced by the fault zone fields, all of which are now nearing the economic limit of production.

(*Continued on page* 85)

PARTIAL RECORD OF DRY HOLES COMPLETED IN EAST AND CENTRAL EAST TEXAS FROM JANUARY 1, 1927, TO JULY 15, 1931

These wells are shown on accompanying large insert map, along with older wells and tests which are still drilling. Information on drilling wildcats may be found in this issue in regular wildcat department.

CAMP COUNTY

Company, Well and Location—	Elevation	Pecan Gap Chalk	Austin Chalk	Total Depth	Date Completed	Remarks
Rogers et al's J. C. Boyd-Enfelt 1, R. M. Montgomery Survey, ne Pittsburgh	410	2490-....	.....	3045	5- 8-30	.....
Benedum & Trees' Jno. F. Browning 1, Harrison County School Lands Survey, Blk. 4	...	.....	.....	3855	7-31-28	.....
McDonald Bros.-Atlantic O. P. Co.'s B. D. Tillery 1, J. H. Murphy Survey	440	2410-2535	.....	4319	11-20-30	.....

CASS COUNTY

Gladys Bell Oil Co.'s A. S. Kinchlee 1	...	.....	.....	3990	.....	Showed salt water and gas
The Texas Co.'s Glosson 1, J. Murchen Survey	...	.....	.....	2916	8- 1-27	.....
Mid-Kansas O. & G. Co.'s Land 1, R. Potter Survey	...	.....	.....	3022	9- 1-27	.....
Mid-Kansas O. & G. Co.'s Rodgers 1, Cass County School Land Survey	...	.....	.....	2828	11- 1-27	.....
The Texas Co.'s Pruitt 1, W. G. Lisenbee Survey	...	.....	.....	1586	2-10-28	.....
Hickman Drilling Co.'s J. W. Mott 1, A. Douthet Survey	...	.....	.....	3505	5-27-28	.....
Davis & Pigg's Jno. Burleson 1, Young Survey	...	.....	.....	2737	9-10-28	.....
Davis & Pigg's Ed Lambert 1, Lambert Survey	...	.....	.....	1952	4- 5-29	.....
The Texas Co.'s Citizens State Bank 1, Jas. Watkins Survey	339	2860-....	.....	3905	12-12-30	Top Woodbine 3450; water sand 3793-98; Georgetown 3866
Phillips Petroleum Co.'s J. R. Olds 1, J. A. Stevenson Survey	245	Annona chalk	1955-2480	4100	1- 8-31	.....
I. E. Smitherman et al's A. S. Fell 1, Jno. Farrell Survey	295	2405-2925	.....	3783	4-10-31	Top Georgetown 3765 ft. Salt water sand 3142-3155 ft.
S. D. Hunter et al's M. Felkner 1, J. L. Chambers Survey, 2 miles e Avinger	248	2373-2860	.....	3708	4-28-31	.....

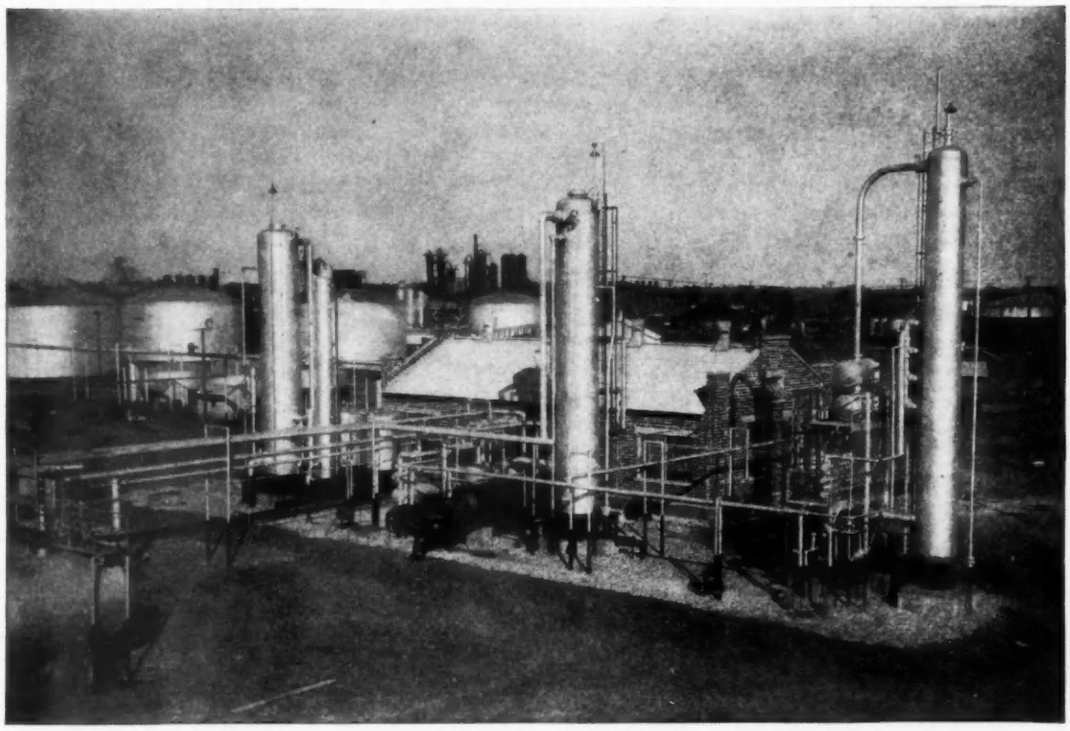
CHEROKEE COUNTY

Humphreys Corp. et al's Stafford 1, H. Walters Survey, 3½ miles ne Ponta	...	3059-....	.....	5124	3-19-27	Top sand with oil and gas show 4108-15.
Humphreys Corp.'s Bowling 1, Humble O. & R. Co.'s Reynolds	...	.....	.....	3898	8-...-26	Junked.
Mortgage Co.'s 1, J. Durst Survey	...	.....	.....	3774	8-15-27	.....
Humphreys-Colton Oil Co.'s P. C. Clapp 4, R. R. Jowell Survey	...	.....	.....	4412	10-10-27	.....
Kirby Petroleum Co.'s Comer Seisson 1, J. M. Mosques Survey	361	.....	.....	4505	8-15-27	.....
Magnolia Petroleum Co.'s Summers Est. 1, W. Brewer Survey	...	.....	.....	4374	10-15-27	.....
Nichols-Rowan Oil Co.'s Mrs. M. F. Schleicher 1, A. C. Walters Survey	...	...	4104-4292	4305	[illegible]	Woodbine 4302-4305
Cherokee Oil Development Co.'s Colliton 2	...	.....	.....	4290	8-14-28	.....
Woodley & Nichols et al's J. T. Kennedy 1, W. M. Brewer Survey	...	.....	.....	4339	2- 1-29	.....
Arkansas Fuel Oil Co.'s N. A. Deason 1, F. Coleman Survey	368	3493-3813	.....	4705	11-28-30	Top Woodbine sand 4628 ft.
D. H. Byrd et al's Dixie Farms 1, J. W. Foreman Survey, 6 miles sw Alto	...	.....	.....	4254	12-18-30	.....
Arcadia Refining Co.'s Jones 1, Edson Gee Survey	481	2978 or 2994-3370	3848-3937	3998	2-25-31	Water sand at 3996-3998 ft; Woodbine.
Roy G. Baker et al's M. M. Tomme 1, Wm. George Survey	442	3054-3418	3968-....	4003	3- 4-31	Abn. in chalk. Salt water in Woodbine at 3874-3909 ft.
Sinclair O. & G. Co.'s McRae 1, F. Vallanova Survey	335	2918-3250	3740-3873	3976	4-25-31	.....
Fain-McGaha Oil Corporation and Sinclair O. & G. Co.'s W. A. Shaw 1, I. Reed Survey	410	3217-3560	.....	4017	5-15-31	Woodbine sand at 4216-4225 ft.; salt water.
Rowan-Nichols Oil Co.-Tidal Oil Co.'s Ousley 1, T. L. Smith Survey	279	3138-3533	4042-4209	4225	5-18-31	Tested salt water in Woodbine 3961-3967 ft.
Sinclair O. & G. Co.'s Martin 1, Larkin Baker Survey	441	2972-3322	3806-3950	3999	5-25-31	.....
O. W. Killam et al's W. A. Newton 1, Thos. Quevedo Survey, 3 miles n Jacksonville	509	3519-3902	.....	4521	5-27-31	Top water sand 4380-89.
Rowan-Nichols Oil Co.'s-Tidal Oil Co.'s W. T. Norman 1, Irby Large Survey	...	3340-3690	4170-4377	4389	6-13-31	.....
D. Harold Byrd et al's Fariss 1, Section 2, G. C. & S. Ry. Survey	481	.....	.....	4373	6-17-31	H. F. W. in top Woodbine at 4109.
H. M. Jones et al's T. McLee 1, Jas. McKnight Survey	302	3164-3417	3899-4087	4154	6-29-31	Chalk.
Ben Banner et al's A. S. Lacy-Williams 1, J. L. Hogg Survey	317	3450-3932	4280-....	4476	7-13-31	

SPECIAL INSERT MAP

A special insert map found in this issue shows all the region comprising the East Texas Basin on the West, and the Sabine Uplift on the East, the two major features controlling production in the East Texas field. Wells listed in the above tabulation will also be found on this map.

ABSORPTION PLANTS



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THE
NATIONAL SUPPLY COMPANIES

GREGG COUNTY

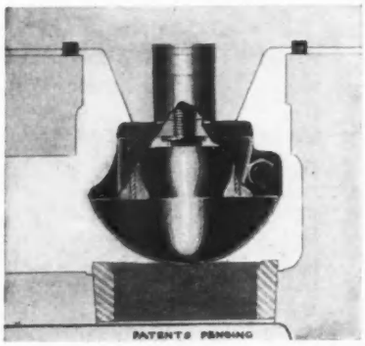
Company, Well and Location—	Elevation	Pecan Gap Chalk	Austin Chalk	Total Depth	Date Completed	Remarks
Diamond Joe's Chaffin 1, Jas. Collard Survey	...	.....	.....	1995	8-14-28	.....
Merren et al's Maude Smith 1, I. Skillern Survey	377	2390-2941	base-2941	3605	3-20-31	Top Georgetown 3550 ft. Tested dry 3525-3605 ft.
Ray Drilling Co.'s Maude Smith 1, I. Skillern Survey	374	2332-2938	3438-3518	3570	3-20-31	Top Georgetown 3546 ft.
O. L. Hickman et al's Maude Smith 1, I. Skillern Survey	373	2327-2995	3476-3514	3580	3-20-31	Top Georgetown 3555 ft. Tested dry 3515-3570 ft.
S. F. Hurlbut & Burton's A. J. Page 1, J. F. Dixon Survey	438	2610-3012	top-3602	3690	3-20-31	Top Georgetown 3679 ft.
S. F. Hurlbut et al's L. L. Mackey 1, G. Y. Chambliss Survey	311	2440-2936	top-3580	3651	7- 3-31	Top Georgetown 3640 ft.
W. L. Brandon-Geo. McCamey et al's Richards 1, M. Van Winkle	339	2541-2927	3428-....	3574	3-28-31	Top Georgetown 3562 ft.; made little oil.
J. R. Travis et al's A. G. Morton 1, W. McCurry Survey	319	2490-2840	3435-3517	3700	3-27-31	Top Georgetown 3533 ft.
Tidal Oil Co.'s Castleberry 1, Wm. Robinson Survey	416	2430-2975	3545-3595	3626	4-10-31	Top Georgetown 3612 ft.
Alco Royalty Corp.'s Castleberry 1, J. R. Castleberry Survey	268	2274-2813	3383-3440	3519	4-10-31	Top Georgetown 3492 ft.; Tested dry 3420-3492 ft.
D. H. Byrd-Gulf Prod. Co.'s Frank Elder 1, Wm. J. McCurry Survey	341	2418-2920	3374-3439	4012	4-10-31	.....
Daniel & Patten's L. C. Dudley 1, Henry Wade Survey	365	2535-2873	3360-3500	3530	4-10-31	Top Georgetown 3530 ft.
Youngblood et al's William Lamb 1, David Ferguson Survey	401	2417-2915	3483-....	3619	4-11-31	Top Georgetown 3534 ft.
T. D. Humphrey et al's A. F. McAfee 1, Wm. Engle Survey	349	2370-2902	top-3468	3578	4-20-31	Top Georgetown 3538 ft.
Mrs. Mamie Hammond et al's Hamby 1, Jno. Lout Survey, 7 miles nw Longview	375	2507-3015	3601-3631	3724	5- 9-31	Top Georgetown 3665 ft. Tested dry 3514-3724 ft.
Capitol Drilling Co. et al's L. Osborne 1, Bobbitt Survey	361	2648-3075	3530-3608	4010	5-10-31	Water in Woodbine
Paul Vitek et al's Louis Osborne 1, R. R. Bobbitt Survey	386	2768-....	.....	4005	5-28-31	Water in Woodbine at 3785-4005 ft.
Geo. L. Pace et al's C. Harrell 1, A. M. Coleman Survey	418	2760-3186	.....	3875	5-28-31	Top Woodbine 3870 to 3875, H.F.W.
R. W. Perkins et al's Walter McCrede 1	...	3703-....	.....	3703	6—-31	Crooked hole.
D. H. Byrd-Gulf et al's Camorras 1, Haden Edwards Survey	373	2405-2947	3394-....	3518	6-19-31	Top Georgetown 3480 ft.
Sabine Oil & Dev. Co.'s J. F. Harris 1, M. VanWinkle Survey	...	2540-2898	3435-....	3666	6-30-31	Top Georgetown lime 3569 ft.
National Securities Oil Corp.'s C. Vernon 1, W. W. Avery Survey	291	2575-2936	3462-3572	3627	7- 8-31	H.F.W. in top Woodbine at 3621 ft.

HARRISON COUNTY

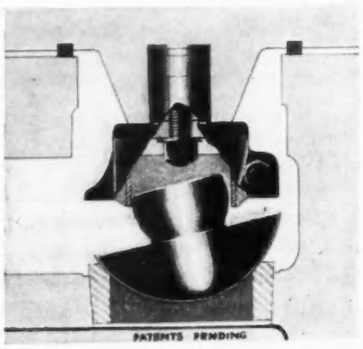
Clark & Melat's Hope 1	...	.....	.....	3540	4- 1-27	.....
Cranfill et al's Nicholson 1, A. Bennett Survey	...	.....	.....	3250	7-20-27	.....
Cranfill Bros. Purfoy 1, W. K. Newell Survey	...	.....	.....	3050	7-20-27	.....
Marland Oil Co.'s La.-Tex 1, A. W. O. Hicks Survey	...	.....	.....	2500	7-25-27	.....
Greenwood Prod. Co.'s La-Tex 1, A. W. O. Hicks Survey	...	.....	.....	2835	11- 1-27	.....
Magnolia Petroleum Co.'s Trosper 2, J. H. Harrison Survey	...	.....	.....	2905	12- 1-27	.....
State Line O. & G. Co.'s Abney 5, E. Little Survey	...	.....	.....	2965	12-20-27	.....
Cook et al's Furrh 1, J. Short Survey	...	.....	.....	1020	3- 5-28	.....
Tylong O. & G. Co.'s Armstrong 1, S. Holloway Survey	...	.....	.....	2950	4-15-28	.....
Natural Gas Prod. Co.'s Adams 4, E. Bracken Survey	...	.....	.....	2336	5- 1-28	.....
Pure Oil Co.'s Taylor 1, W. H. Payne Survey	...	.....	.....	3081	8-14-28	.....
Dallas-Caddo Hunting Club's Fee 1, Oscar Hope Survey	...	.....	.....	2502	8-14-28	.....
Lyons Gas Co.'s M. M. O'Bannion 1, W. H. Adams Survey	283	.....	.....	2398	5-27-29	.....
McCritchie et al's Dean 1, Craft Survey	...	.....	.....	2804	9-26-29	.....
Lyons Gas Co.'s Furrh 2, Joel Lipscomb Survey	...	.....	.....	2366	5- 5-29	.....
Eureka Natural Gas Co.'s Vaughn 4, W. R. Anderson Survey	...	.....	.....	2352	7- 1-29	.....
Nick Barbare's C. M. Abney 8	...	.....	.....	2346	12- 5-29	.....
Shell Rock Oil & Development Co.'s Daugherty 1, W. B. Burros Survey	...	.....	.....	3568	1-24-31	Junked.
S. D. Hunter et al's Daugherty 1, W. B. Burris Survey	...	.....	.....	3592	1-30-31	.....
Crump-Hannigan's S. H. Dunn 1, Bettie Humphries Survey	...	.....	.....	4006	3-28-31	.....
W. H. Hobson Tr.'s Taylor 1, Henry Vardeman Survey	284	.....	2095-....	3540	4-10-31	Georgetown 3183-3540 ft.; top Nacatoch 1575 ft.
Karona Petroleum Co.'s A. J. Bohler 1, S. F. Sparks Survey	310	top-1935	.....	3161	4-24-31	Georgetown 2812-3161 ft.
W. G. Ray Drilling Co. et al's M. J. Hall 1, D. Davis Survey	591	2257-2859	3445-3471	3752	5-10-31	Georgetown topped 3472 ft.
Sinclair O. & G. Co.'s Davenport 1, J. V. Morton Survey	396	2420-2960	3665-....	3735	5-10-31	Dry sand 3693-98 ft. Georgetown 3712-35 ft.
Geo. L. Pace (Gilcrease Oil Co.'s) Barker 1, Victor Pedraso Survey	349	2237-2810	top-3407	4018	5-20-31	Dry sand 2181-2187; top Georgetown 3529 ft.
Wm. Atkinson's O. D. Hays 1, J. C. Chappin Survey	307	1770-2300	.....	2875	5-20-31	Top Blossom 2430, Georgetown 2850-2875 ft.
Rowan & Nichols' Bussey 1, E. A. Merchant Survey	...	2310-2880	3450-....	3564	6- 1-31	Georgetown lime 3540-3564 ft.
Hunter et al's Daugherty 2, W. B. Burris Survey	...	.....	.....	3563	6- 5-31	Abn. in Georgetown.
Crump & Hannagan's Dunn 1, Bettie Humphries Survey	330	.....	.....	4006	6- 5-31	Abn. in Georgetown No Nacatoch; Georgetown 3995-4007.
Everett Drilling Co.'s R. L. Sypert 1, Richard Hooper Survey	311	2154-2691	3252-....	4007	6-20-31	3461-3752 ft.
Ray Drilling Co.'s Hall 1	...	.....	.....	3752	6-27-31	Georgetown .....
Ben Banner's J. C. Lowery 1, W. O. Stanfield Survey	...	.....	.....	4016	7-10-31	

CALMEC

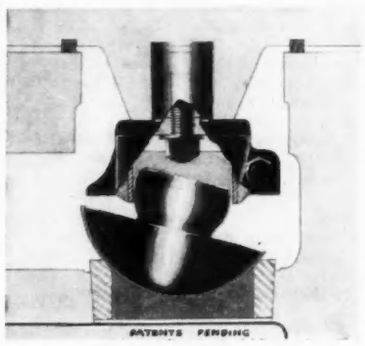
BALL-GUIDED PUMP VALVE



Calmec Valve in open position, showing wide open view of valve port.



This and view at right show exceptional flexibility of Calmec Valve.



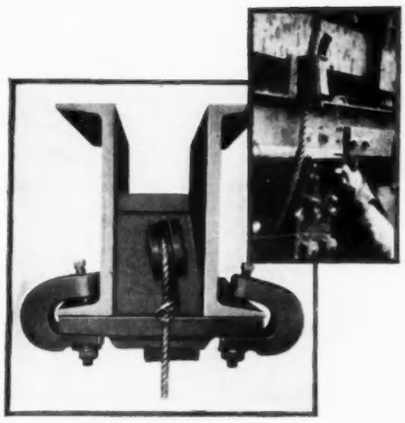
Valve in any position seats perfectly over entire area of seat.

The Calmec Valve has definitely established new records of efficient performance and long service wherever used. All metal construction, with no rubber to deteriorate, gives this valve longer life than ever has been deemed possible. Records of 6,000 hours in one instance, three months in another, and increases of 30% to 40% in efficiency are astounding operators in every field. If you have to be shown, try them.

The Calmec Valve principle of ball and seat is the oldest, most satisfactory and most efficient in pump history. Our ball guided feature prevents fluttering and forces the valve to seat on its full area. The valve can oscillate and still seat perfectly. Use tends to increase rather than decrease its efficiency. Sand and gravel cannot lodge on seat to hold valve open, impair performance, and result in damage. Write for illustrated bulletin.

CALMEC DRILL PIPE SPIDER

Designed for handling drill pipe, tubing and casing rapidly and safely. A real one-man spider that saves time, cuts costs and prevents accidents. Slips all set simultaneously, and are opened or closed by a detachable bar which fits any one of four sockets at ends of crank shafts. Fits any standard rotary table. Details and prices on request.



CALMEC CAT-LINE GRIP

Fast—Safe—Positive—Economical. A great time and money saver. Prevents accidents. Holds the rope load firmly and safely at any desired point. The heavier the load the stronger the grip until the load is taken up on the cathead and the slip allowed to drop clear. Can be installed on either steel or wooden headers. Two types, for installation between or above the header. Details on request.

CALMEC MANUFACTURING CO., *Ltd.*

GENERAL OFFICES AND PLANT

5817 RIVERSIDE DRIVE AT SLAUSON AVE., LOS ANGELES, CALIFORNIA, U. S. A.

HENDERSON COUNTY

Company, Well and Location—	Elevation	Pecan Gap Chalk	Austin Chalk	Total Depth	Date Completed	Remarks
F. Haines' J. I. Little 1, G. T. Walters Survey	...	.....	.....	3110	3- 7-27	.....
W. K. Cayton's Huffer-Nash 1, H. Jeffreys Survey	...	.....	.....	3205	7-27-29	.....
Kimbrough & Miller Oil Co.'s Dobbs 1, Simon Weiss Survey	...	.....	.....	2827	11-30-27	.....
Pine Grove Oil Co.'s Johnson 1, Samuel Chears Survey	...	.....	.....	2911	11-30-27	Abn in chalk
Sinclair O. & G. Co.'s Boston-Fincastle 1, se Henderson	...	.....	.....	4255	8-15-28	.....
Barkley & Meadows' B. J. McClung 1, Amanda Carroll Survey	...	.....	.....	3395	8-14-28	.....
Sid Richardson et al's No. 1, Wm. D. Ratcliff Survey	...	.....	.....	3620	8-14-28	.....
Cranfill-Reynolds Co.'s B. E. Purifoy 1, W. K. Newell Survey	...	.....	.....	3033	8-14-28	.....
Tidal Oil Co.'s Moore 1, J. N. Selley Survey	...	.....	.....	3562	8-15-28	.....
Mutual Security Oil Association's Browning 1	...	.....	.....	2965	8-15-28	.....
Penn et al's Absher 1	...	.....	.....	3086	8-15-28	.....
McElreath-Suggett's G. H. Schoell-Kopf 1, Thos. Mitchell Survey	...	.....	.....	3365	9-11-28	.....
Shell Petroleum Corp.'s Coleman 1	...	.....	.....	2175	12- 6-29	.....
Foster et al's Richardson 1, Isaac W. Burton Survey	...	.....	.....	3843	2-22-30	.....
Cranfill-Reynolds Co. et al's J. W. Broom 1, Sam Chears Survey	456	2695-2890	3823-4070	4700	5- 9-30	Top Woodbine 4230 ft.
Shell Petroleum Corp.'s S. T. Stephens 1, I. D. Owen Survey	510	2050-2129	2916-3110	4815	6-28-30	Top Salt 4450 ft.
Cranfill & Germany's E. C. Starr 1, G. Acosta Survey	434	2544-2770	3755-4070	4503	8-28-30	.....
Sun Ray Oil Co.'s R. H. Davis 1, E. G. Harris Survey	...	2536-2694	3540-3998	4721	9-19-30	.....
E. L. Chapman et al's Cade 1, Simon Weiss Survey	340	3170-....	.....	3189	9-27-30	.....
Henderson Syndicate's Cade 1, J. B. Dorsey Survey, 2 miles se Chandler	...	.....	.....	3199	10-18-30	.....
L. G. Bradstreet & Co.'s J. J. Schaunessey 1, Jno. Isard Survey	548	2560-2734	3595-3843	4585	10- 3-30	Top Woodbine 4389 and Salt Water 4431-34 ft.
E. L. Chapman et al's Cade 2, J. B. Dorsey Survey	...	.....	.....	944	10-28-30	.....
Geo. L. Pace et al's S. Anthony 1, J. M. Bertram Survey	410	2252-2361	3050-3435	4039	11- 1-30	Top Woodbine 3979 ft.
Texas State Oil Co. et al's T. H. Skinner 1, J. Hinshaw Survey	453	2500-2603	3559-3977	4581	1- 9-31	Top Woodbine 4400 ft.
Ashburn et al's Berry 1, A. York Survey	397	2830-3015	3983-....	3993	1-31-31	.....
E. L. Chapman et al's Cade Bros 3, J. B. Dorsey Survey	...	3073-3267	4385-4739	5090	3-15-31	Abn in salt water; Top Woodbine 5051 ft.
Arcadia Refining Co.'s and Shell Petroleum Corp.'s Dean 1, Simon Boon Survey	...	2432-2650	3330-3558	4206	6-12-31	Show of gas in Top Woodbine sand 3893-3995 ft.

MARION COUNTY

H. L. Hunt's Chatten 1, Grayson Survey	...	.....	.....	3415	6-12-30	.....
W. D. Chew's Fee 1, Wm. Hamilton Survey	...	.....	.....	3426	11- 6-30	.....
Pure Oil Co.'s I. W. Thompson 1	...	.....	2785-....	3313	11-13-30	.....
Imperator Oil Co. & Paul Vitek's Luther 1	447	1653-....	2630-2810	3025	11-13-30	.....
Kraft & Kelsey et al's Wiley Enas 1, Prado Survey	...	1645-1770	2550-2797	3003	11-12-30	.....
Shasta Oil Co.'s Johnson 1, Wm. Mason Survey	...	.....	.....	2827	4-10-31	Georgetown 2825-27 ft.
Eden Oil Co.'s J. M. Deware 1, R. Hazelwood Survey	208	2105-2595	.....	3304	5- 1-31	Georgetown 3258-3304 ft.
Sinclair O. & G. Co.'s Wright-Braden 1, Jacob Grover Survey	336	2210-2802	Top 3398	3463	5-10-31	Georgetown 3451-3463 ft. Abn in lime;
Sinclair O. & G. Co.'s D. R. Coulter 1, Wm. Russell (S. J. Burress) Survey	376	2310-3049	.....	3906	5-10-31	Top Georgetown 3905 ft.
Trammell et al's Hussey 1, Chas. Lockhart Survey	282	1771-....	.....	1878	5-25-31	Junked and abn.
Rondeau & Hindman's McGaughey 1, W. J. Willis Survey	...	.....	.....	3933	6- 1-31	Abn in Georgetown

MORRIS COUNTY

East Texas Development Co.'s P. H. Stoggers 1, G. Forbes Survey	370	2525-....	.....	3041	9- 3-30	Shale
Holmes-Nelson & Flynn's O'Conner 1, J. B. Cherry Survey	379	2618-3151	3660-....	4015	5-17-31	.....

NACOGDOCHES COUNTY

(Including Old Wells Drilled Prior to 1927.)

The Texas Co.'s Cameron Lumber Co. 1, J. A. Chireno Survey	...	.....	.....	3002	4-30-19	.....
Caro Syndicate's Whitaker 1, ¼ mile w Caro	...	.....	.....	3372	5-10-21	.....
T. R. McLean's Matthews 1, Jose Maria Moro Survey, 3½ miles n Woden, 3 miles sw Melrose	246	.....	.....	3217	Before 1927	.....
Nacogdoches Oil Syndicate's No. 1, 1 mile e Appleby	...	.....	.....	3560	Before 1927	.....
Palmetto Production Co.'s Reeves 1, Mose Walters Survey, 1 mile w Sacul	...	.....	.....	3229	Before 1927	.....
Rose Lake Oil Co.'s Hall 1, Pedro S. Padillo Survey, 3 miles n Nacogdoches, w side creek	...	.....	.....	2008	Before 1927	.....
R. P. Harris' Griffin 1, J. Wanderson Survey	...	.....	.....	2973	2-25-30	.....
Jno. Starks et al's (Capps & Baker's) Langford 1, Seth Cason Survey	...	2614-3617	.....	3879	5-10-31	Top Navarro 2640 ft; top Georgetown 3860 ft; tested dry 3852-3879 ft.
Fain-McGaha's Pirtle 1, Jas. Everett Survey, 2 miles ne Cushing	...	.....	.....	3030	6-20-31	.....
Upland Oil Co.'s & King Drilling Co.'s C. M. Cooper 1, Jas. Windsor Survey	...	.....	.....	3880	6-20-31	.....

PANOLA COUNTY

Company, Well and Location—	Elevation	Pecan Gap Chalk	Austin Chalk	Total Depth	Date Completed	Remarks
Magnolia Pet. Co.'s Leigh-Trosper 1, Stephenson Survey	...	.....	.....	2690	10- 4-29	.....
Magnolia Pet. Co.'s Adams 3, Jas. Matthews Survey....	...	.....	.....	2850	11- 8-29	.....
Texas La. Prod. Co.'s Laurence 1, Harrison Davis Sur...	...	.....	.....	3016	10-16-30	.....
The Texas Co.'s G. W. Brumble 6, Evans Bracken Sur..	...	.....	.....	2640	1-16-31	.....
Creighton & Hart's Greeny Kyle 1, J. Tippett Survey...	349	.....	.....	3704	2-13-31	.....
Knot et al's (H. S. Jackson) Marion Durham 1, Chas. Haley Survey	...	.....	.....	3190	4-10-31	Tested gas and salt wtr. 2998 ft.
Everett Prod. Co.'s McDaniel 1, Alamson Barr Sur., 3rd hole	...	.....	.....	410	5-10-31	.....
Bell et al's Burnett Lbr. Co. 1, S. B. Hendrick Survey..	186	.....	.....	3335	6-12-31	.....
Burk & Humphreys Waterman 1, Shires Survey.....	...	.....	.....	2450	9- 1-27	.....
Cranfill et al's Mays 1, Jane Thorpe Survey.....	...	.....	.....	1992	11-15-27	.....
Magnolia Pet. Co.'s Lula Fletcher 1, B. C. Jordan Sur..	...	.....	.....	2835	2-15-28	.....
Magnolia Pet. Co.s Lula Fletcher 2, Ben Jordan Sur...	...	.....	.....	2560	2-20-29	.....
H. Hines' Jones 1, G. Goodwin Survey.....	...	.....	.....	2514	3- 2-28	.....
Littlejohn et al's Cromwell 1, Mann Survey.....	...	.....	.....	2560	8-25-28	.....
Collinwood et al's W. A. Adams 1, Blankenship Survey..	...	.....	.....	2800	9- 1-28	.....
S. H. Gardner's Lawless 1, J. L. Mathews Survey.....	...	.....	.....	2805	1-22-29	.....
Natural Gas Prod. Co.'s Roquemore 8, B. C. Jordan Sur.	...	.....	.....	2980	2-15-30	.....
Riverland Co.'s J. H. Finch 1, Wm. Harfeman Survey..	...	.....	.....	2752	6-22-29	.....
The Texas Co.'s G. W. Brumble 12, J. Womack Survey..	...	.....	.....	4751	6- 6-31	.....

RUSK COUNTY

Big State Oil Co.'s (C. T. Rucker's) A. Wright 1, Parmelia Chism Survey	...	.....	.....	3560	10- 1-27	.....
McCurry et al's Sparks 1, L. C. Rugg Survey.....	...	.....	.....	2140	12- 1-27	.....
The Texas Co.'s Schultz 1, A. Loffton Survey.....	...	.....	.....	3349	1- 6-28	.....
C. M. Joiner et al's Bradford 1, J. Ximines Survey....	...	.....	.....	1098	1-10-28	Junked
The Texas Co.'s Goodwin 1, South of Henderson.....	...	2350-2782	2916-3070	4998	1928	Georgetown 3170-3626 feet, Goodland (Fredericksburg) 3627-4362; top Glen Rose 4362; abn in Glen Rose
Osborne et al's Matthews 1, Dolores Cartinez Survey....	...	.....	.....	2607	1-19-29	.....
McCurry et al's Sparks 1, Jesse Loose Survey.....	...	.....	.....	2700	3-16-29	.....
C. M. Joiner's Bradford 2, Juan Ximines Survey.....	...	.....	.....	2528	5- 4-29	.....
Magnolia Pet. Co.'s Mirtie Duran 1, Jas. Lollar Survey	437	.....	.....	4035	12-20-29	.....
Magnolia Pet. Co.'s Duran-Wylie 1, Aguilla Norris Survey	431	.....	.....	3295	5-10-30	.....
Clem S. Clark & Benedum Trees Oil Co.'s McCaslin 1, J. E. Blackburn Survey	406	2190-2487	.....	3256	11-1 -30	.....
Arkansas Fuel Oil Co.'s J. A. Worrell 1, Juan Ximines Survey	412	2490-2915	3439-....	3700	11-20-30	Top Georgetown 3640 ft.
L. L. Smith et al's W. H. Worrell 1, Juan Ximines Sur.	424	2338-2925	3380-....	3672	11-21-30	Top Georgetown 3628 ft.
C. Rosenfield et al's E. L. Pinkston 1, M. V. Pena Sur.	363	2503-2949	3415-....	3602	12-26-30	Top Georgetown 3590 ft.
Burgoyne Bros. et al's J. A. Alexander 1, T. Jones Sur.	499	2478-2877	3442-3493	3757	2-7 -31	Top lime 3588 ft.
J. K. Lewis & Goodman's O. C. Jones 1, Brown Survey..	507	2420-2955	3497-....	3707	2-6- 31	Top lime 3580 ft.
E. C. Laster et al's Bradford 1, Juan Ximinez Survey....	387	2545-2964	3390-3455	3587	2-28-31	Junked
Capps-Smith et al's J. L. Cochran 1, J. Roth Survey....	386	2683-3011	3490-3594	3802	3-15-31	Top Georgetown 3769 ft.
Joe Burnham-Lloyd-Anderson's Nicely 1, Thos. Obar Sur.	339	2210-2560	2940-3195	3601	3-15-31	Top Georgetown 3201 ft.
Pet. Marketing Corp.'s Arnold Goodwin 1.....	...	.....	.....	2761	3-28-31	Junked
Leonard Pet. Co.'s Adams 1, S. C. George Survey.....	...	2365-2730	3145-3265	3334	4- 1-31	Top Georgetown 3269 ft.
Daniels-Patton's Mercer 1, M. A. Young Survey.....	...	2400-2830	3416-3534	3595	4-11-31	Top Georgetown 3551 ft.
Babcock Bros.'-Ann B. Gordan Oil Co.'s Camp 1, Juan Ximinez Survey	470	2525-2960	top 3447	3607	4-20-31	Oil show 3577-3602 ft. junked
Dan S. Brooks-Root Refg. Co.'s Alford 1, J. D. Reel Survey	...	2625-2917	top 3455	3815	4-20-31	Top Georgetown 3530, sand 3528-30 ft.
Morefield Drlg. Co.'s Ector 1, Daniel Clark Survey.....	401	2420-2920	top 3455	3700	4-25-31	Georgetown 3594-3700 ft.
Stevens & Turner's Pickett 1, T. J. Roberts Survey....	...	2354-2720	3192-....	3456	7-13-31	Top GTL 3454
Big Indian Oil Co.'s A. J. Deason 1.....	...	2710-3048	.....	2655	5-10-31	Junked.
W. C. Wolf & W. G. Ray Drlg. Co.'s J. P. Wilson 1...	...	2700-3063	3533-3617	3667	5-10-31	Junked.
W. R. Ramsey et al's M. Kangerga 1, W. J. Allen Sur..	430	2806-3175	3610-3696	3883	5-10-31	Abn. in Del Rio salt wtr. in Woodbine at 3780-3800 ft.
Rusk County Oil Co.'s Robertson A-1.....	...	2593-3080	3500-3597	3691	5-20-31	Top Georgetown 3685.
Griffith et al's F. J. Lowe 1, Wm. Williams Survey....	366	2827-3140	3530-....	3768	6- 1-31	Top Georgetown 3752
Westexas O. & Royalty Corp.'s E. C. King 1, J. C. Morrison Survey, 3 miles W Garrison.....	...	2650-3100	base-3731	3772	6- 8-31	Georgetown lime 3766-3772 ft.
Sinclair O. & G. Co.'s March 1, L. Williams Survey, 2 miles N Mt. Enterprise	...	2676-3234	.....	3822	6-12-31	Georgetown 3822-3832 ft.
Shell Pet. Corp.'s T. Wells 1.....	...	.....	.....	3030	6-20-31	.....
Stevens & Turner's Picket 1, T. J. Roberts Survey.....	...	2354-2720	3192-....	3456	7-13-31	Top Georgetown lime 3454.

SABINE COUNTY

Loring Oil Co.'s (Benedum Trees Oil Co.'s) Nona Mills Lbr. Co. 1, Jas. Mason Survey.....	260	.....	.....	4803	5-10-31	Abn. in lime; top Lower Cretaceous 4404 ft.
John Deering's Harris 1, 2 miles north Nona Mills Lbr. Co. 1.....	255	.....	.....	4049	.....	.....

SHELBY COUNTY

(Including two oil producers)

Company, Well and Location—	Elevation	Pecan Gap Chalk	Austin Chalk	Total Depth	Date Completed	Remarks
Arkansas Fuel Oil Co.'s Bouland 1, A. W. Canfield Survey, 1 mile W Tenaha	323	.....	.....	3724	6-17-27	.....
Rio Bravo Oil Co.'s S. C. Choate 1, Georgetown R. R. Survey No. 2	...	.....	.....	3954	10-10-27	Had gas sand.
Wm. Sebastian's Pickering Lbr. Co. 1, T. F. Polly Sur.	...	.....	.....	2923	2-20-28	.....
Magnolia Pet. Co.'s Pickering 1, W. J. Crane Survey	...	.....	.....	3805	1928	.....
O'Keefe & Collet's Crawford 1, Wm. Hill Survey	...	.....	.....	4049	2- 8-26	.....
Magnolia Pet. Co.'s Pickering 3, Wm. J. Crane Survey	...	.....	.....	2622	9- 1-28	19-bbl. producer; Shelbyville field.
Gulf Ref. Co.'s Pickering Lbr. Co. 1, P. W. Harvey Sur.	251	.....	.....	3382	11-25-28	Completed as 154-bbl. producing well; 38.5 gravity oil; oil sand 3243-3260 ft.
Gulf Ref. Co.'s Caraway 1, G. H. Patterson Survey	...	.....	.....	6580	10- 4-29	.....
Benedum Trees Oil Co. (Loring O. Co.'s) Pickering Lbr. Co. 1, D. T. F. Yordt Survey	...	.....	.....	2860	12- 5-29	.....
Gulf Ref. Co.'s Pickering Lbr. Co. 2, Patterson Survey	...	.....	.....	3560	12- 6-29	.....
Loring Oil Co.'s (Benedum-Trees Oil Co.'s) B. C. McCann 1, D. G. Greene Survey	...	.....	.....	5520	7-24-30	In Lower Cretaceous at 3865 ft. Abn. in shale and lime
Chapparal Oil Co.'s T. B. Holt 2, Matthew Moore Sur.	...	.....	.....	3001	8- 2-30	.....
C. R. Ridgeway's Parker 1, Jesse MceKlvey Survey	...	.....	.....	3015	12-18-30	.....
Sloane Prospecting Co.'s and Tokio Oil Co.'s Windham 1, A. H. English Survey	230	.....	.....	3400	7-10-31	Yielded gas from Blossom sand and 37 gravity oil from Tokio; but would not flow. Blossom at 2662-2755 ft.; Tokio 3327-3097.
E. J. Burke et al's Patterson 1	...	top-2680?	top-3600?	4170	12- 1-30	Abandoned in Georgetown lime.

SMITH COUNTY

Dr. Gaither et al's Parker 1, Don Thomas Quevedo Sur.	...	.....	.....	3250	1-25-28	.....
Gulf Prod. Co.'s R. McCammond 2, Vinson Moore Sur.	...	.....	3079-3233	3316	5-22-28	On Bullard dome, G'getown 3258-3316 ft.
Amerada Pet. Corp.'s Christian 1, F. Flores Survey	514	3220-....	4502-4712	5382	1-26-29	Top Woodbine 5113 to 5195 ft.; top Red Beds 5195 ft.
Deep Rock Oil Co. et al's Bowdoin 1, M. V. Lout Sur.	434	3338-....	.....	4220	4- 3-30	Deepened from 3750.
East Texas Pet. Corp.'s Peoples St. Bk. 1, Jno. McFadden Survey	465	2375-2530	3008-3190	3514	4-17-30	.....
Daniels, Adair & Slick's A. J. Poiret 1, David Wilson Sur.	375	2857-3000	.....	4537	6- 1-30	Bonham clay.
E. L. Chapman & Sutton's J. M. Hammon 1, Jos. Reid Survey	380	2680-2912	3900-....	4295	8- 6-30	.....
McElreath & Suggett's J. Gilliam 1, J. C. Robertson Sur.	623	3430-3608	.....	4010	8- 7-30	.....
J. G. Kugle-T. B. Slick Est.'s M. Freeman 1, A. J. Lagrone Survey	503	2980-3275	.....	3623	12-30	Chalk.
Sun Oil Co.'s Oscar McGehee 1, Thos. Quevedo Survey	428	.....	.....	3842	1- 2-31	.....
Owen-Sloan Oil Co.'s Starnes 1, J. W. Allen Survey	397	2738-3052	3771-3838	4235	1-23-31	Top Woodbine sand 3928-4235 ft.
Howard Pet. Co.'s Lee Holt 1, Barnes Clark Survey	434	2840-....	3807-....	4050	5- 1-31	Water sand 3921-24 ft.
Thayer & Rogers' Willingham 1, Jacob Herrin Survey	...	.....	.....	2100	5- 9-31	.....
Ruffin-Williams' H. Florence 1, Barnes Clark Survey	...	2775-3260	.....	4025	5-10-31	Water in Woodbine at 4006-4010 ft.
Imperator Oil Corp.'s I. M. Green 1, H. Hogan Survey	...	.....	.....	2210	5-31	.....
Big Indian Oil Co.'s Holland 1, T. Allen Survey	509	2860-3150	3720-3780	4015	5-28-31	Wtr. in Woodbine at 3962-4002 ft.
E. L. Chapman et al's Alexander 1, J. K. Carson Survey	...	2700-2730	.....	4144	6- 1-31	Salt wtr. sand 4085-4144 ft.
Owen-Sloan Oil Co.'s M. Starnes 2, Samuel Epps Sur.	357	2620-2973	3687-3715	4204	6-12-31	Tested salt wtr. in Woodbine 3879-3899.
Arkansas Drl. Co.'s L. A. Wallace 1, W. W. Avery Sur.	...	2640-3140	3735-3768	3859	7- 3-31	Salt wtr. 3807 feet.

TITUS COUNTY

Wainwright-West Oils, Ltd.'s Walcott-Lott 1, D. M. Smith Survey	290	2627-3178	.....	3818	6-28-30	Dry Blossom sand 3648-3660 ft.; deepened from 3758 ft.
Deep Rock Oil Co.'s State Bank Fee 1, H. W. Cobb Sur.	410	2406-2927	4132-....	4538	8- 1-30	Trace oil, gas and salt wtr. at 3720-3737.
Deep Rock Oil Co. et al's F. M. Autry 1, Jno. Ring Sur.	550	2253-2398	.....	4000	9- 5-30	.....
Deep Rock Oil Co. et al's E. L. McElroy 1, Kendall Lewis Survey	460	2424-2454	.....	3858	12-11-30	.....

UPSHUR COUNTY

Magnolia Pet. Co.'s G. L. Cannon 1, M. H. Palvador Survey	...	.....	.....	2618	6-24-27	.....
Gulf Prod. Co.'s Morgan 1, V. Moore Survey	...	.....	.....	531	11-20-27	.....
Amerada Pet. Corp.'s Wade 1, J. H. Fields Survey	422	.....	.....	6153	10- 3-29	Top Woodbine 3605 ft., tested water; abandoned in Glen Rose
E. L. Chapman, R. M. Wilburn, et al's J. H. Hudspeth 1, J. C. Dearman Survey	...	.....	3859-....	4114	2-14-30	.....
Freeland et al's Newsome 2, Ahira Butler Survey	...	.....	.....	2050	5-10-30	.....
Merritt 1, L. B. Brown Survey	358	2570-2930	3487-3523	4004	3-20-31	Abn. in Woodbine. Sand top 3889 ft.
McGinley Corp.'s Reeves-Merritt 1, L. B. Brown Survey	358	2570-2930	3487-3523	4004		

(Continued on page 63)

Company, Well and Location—	Elevation	Pecan Gap Chalk	Austin Chalk	Total Depth	Date Completed	Remarks
DeArmand et al's Chas. Cobb 1, M. Mann Survey.....	428	2590-3118	3723-3771	3864	4- 5-31	Cored salt wtr. sand 3771-3842 ft.
Penn Oil Co. et al's O. B. Gage 1, J. B. Davenport Sur.	377	2574-....	3610-3668	4105	4-25-31	Top Woodbine sand showing salt wtr. 3668 or 3765 ft.
Arcadia Ref. Co.-Harper's T. S. Johnson 1, J. H. Mallory Survey	...	2461-2971	3450-3636	3790	6-12-31	Hard sand 3768-3790 ft.
VAN ZANDT COUNTY						
Jewell & North Texas Oil Co.'s Davis 1, J. J. Moore Survey, E half	...	.....	.....	4093	6-16-21	.....
Cranfill Bros.' H. Smith 1, ...	...	.....	.....	3708	4- 3-27	.....
Central Oil Co. & H. L. Hunt's S. J. West 1, A. C. Walters Survey	564	.....	3900-4263	4703	4- 8-31	Deepened from 3535 to salt water at 4696-4703.
Mills Bennett & Van Zandt O. & G. Co.'s J. H. Jones 1, J. N. Holt Survey	...	2152-2247	3305-....	3347	6-..-24	.....
W. H. Kerbow et al's (Thornton-Tauber) J. A. Everett 1, A. Carlisle Survey.....	410	chalk top 2918-ft.	.....	3008	2-21-30	Pecan chalk.
R. C. McElmurry et al's J. W. Peel 1, S. T. Meeks Sur..	...	2852-....	.....	3008	3- 1-30	.....
Cranfill-Reynolds Co.'s C. S. Coker-Ledbetter 1, Wm. Daniels Survey	...	1840-2010	2924-3006	3370	4-20-30	Water sand 3292-3318, 3360-3370 ft.
T. G. Shaw-Fagg et al's W. F. Huddle 1, L. Richardson Survey	545	2593-....	.....	3448	3- 1-30	Shale.
Arthur Ray & Ward Powell's A. J. Berry 1, Nacogdoches Co. School Survey	542	2591-2749	.....	3508	4-23-30	Shale.
Upchurch & Will Thompson's School 1, McKinney-Williams Abst 599	495	2021-2087	2987-....	3073	5- 9-30	Austin chalk.
Cranfill-Reynolds Co.'s C. M. Alexander 1, Burleson Survey	395	2695-2814	.....	3490	5-15-30	Sticky shale.
Pandem Oil Corp.'s Brin-Gibbard 1, Roy Sunigas Sur...	391	2850-2979	.....	3512	5-30-30	.....
Cranfill-Reynolds Co.'s Ledbetter 2	...	.....	.....	1295	6-11-30	Trace oil and wtr. in Nacatoch 1268-1295
L. B. Pruitt & Imperator Oil Co.'s Carter 1, Jno. Walling (Wm. Daniels) Survey.....	437	1652-2007	3063-3134	3504	6-20-30	.....
Dennis Oil Corp.'s C. W. Morris 1, C. L. Morrison Sur..	496	.....	.....	3071	6-28-30	Taylor Marl.
Century Oil Co.'s S. A. Stewart 1, A. J. Harley Sur....	...	2485-2570	3518-3855	4278	7-10-30	Top Woodbine 3887-3908 ft.
Grand Saline Oil Co.'s W. J. Carnes 1, S. P. Ry. Sur..	349	2314-2505	.....	3520	7- 9-30	.....
J. M. Walker et al's S. A. Keahley 1, Robt. Giles Sur., 4½ miles SE Grand Saline	...	.....	.....	4278	7-12-30	Top Woodbine 4238 ft.
Manley-Short-Sprinkle's B. C. Andrews 1, M. Neal Sur..	536	.....	.....	3711	7-17-30	.....
Humble O. & R. Co.'s J. A. Freeman 1, John Walling Survey	510	1749-1825	2614-2802	3505	7-24-30	Salt wtr. in Woodbine at 3064 ft.
Pure Oil Co.'s A. Crim 1.....	...	.....	2690-....	3594	8- 1-30	Salt wtr. in Woodbine at 2942 ft.
Pure Oil Co.'s B. E. Crim 2.....	...	.....	.....	3012	4- 8-31	.....
Pure Oil Co.'s A. G. Mayfield 4.....	...	.....	2745-....	2993	5- 8-31	Mottled shale.
Van Zandt Oil Co.'s Sharp-Robinson 1, J. B. Ybarbo Sur.	372	2764-....	4116-4508	4802	8-27-30	Sandy lime.
Terrell O. & G. Co.'s J. T. Dunbar 1, Van Sickle Sur...	472	1510-....	2355-2766	3710	2-..-25	.....
Roy Jenkins & Bert L. Brookins' R. P. Hughes 1, E. Alvarado Survey	491	2150-2790	.....	3505	6-30-24	Top Woodbine 3443 ft.
C. F. Kolp et al's Matthews 1, W. H. Bruce Survey...	409	2805-2190	3072-3394	3736	9- 6-30	No sand.
Texas Chief O. & Royalty Co.'s J. P. Porter 1, F. Montgomery Survey	548	.....	.....	2464	9-28-30	Junked.
Humble O. & R. Co.'s L. A. Dawdle 1, Wm. Daniels Sur.	...	.....	2565-....	2987	10- 4-30	.....
W. T. Daniels et al's Cumbie 1, Jno. Wright Survey...	457	1690-1730	.....	2275	10-18-30	.....
E. L. Chapman et al's Wolverton 1, Wm. James Survey.	515	2810-3106	3409-....	4150	10-23-30	Top Woodbine 3996.
D. H. Byrd et al's C. H. Morris 1, I. P. Piles Survey..	570	3258-3401	4605-....	4739	11- 6-30	Quit in chalk.
L. G. Priest et al's B. Blewett 1, E. Porter Survey....	610	2795-2957	.....	3212	11- 7-30	.....
B. P. Hervey and Bethel Oil Co.'s P. Smith 1, M. Neal Survey	435	2555-2790	3865-4009	4815	2-4-31	Old well deepened; abn. 3708 ft. in 1927; water 4807-15.
T. W. Moore et al's W. A. Kellam 1, J. Russell Survey..	515	2782-2924	4032-4380	4806	12-11-30	Top Woodbine 4690 ft.
Whittmer O. & G. Co.'s R. W. Beggs 1, H. W. Raquet Survey	568	2970-3123	.....	3512	2-28-31	Abn. in shale.
Pure Oil Co.'s Frank Blackstock 1, John Walling Sur..	471	1670-....	2630-....	2990	3-10-31	Salt water at 2930.
J. C. Fore et al's P. S. Hand 1, M. Sherman Survey....	577	2420-2442	3452-3892	5160	5-20-31	Top Woodbine 4451; quit in sandy shale.
Wilson et al's Stribling 1, Philip Mason Survey.....	...	.....	.....	2031	5-20-31	Shale.
The Texas Co.'s G. W. Carter 2, Wm. Daniel Survey..	...	1620-1750	2633-2796	3039	9-18-31	Top W'bine 2961.
Pure Oil Co.'s J. C. Stewart 1, A. McPhail Survey....	...	.....	.....	2996	7- 1-31	.....
Pure Oil Co.'s I. W. Thompson 1, M. Gross Survey..	...	.....	2785-....	3313	11-16-30	.....
Pure Oil Co.'s A. G. Tunnel 1, M. Gross Survey.....	...	.....	2545-....	3797	11-19-30	Black shale and lime.
WOOD COUNTY						
E. H. Everett's Consumers Light Co. 1, Jacob Crawford Survey	...	.....	.....	3504	2-23-27	.....
Gulf Prod. Co.'s N. E. Carver 1, Wm. Kern Survey....	400	2870-....	5037-5107	5430	5- 1-30	Junked.
Gulf Prod. Co.'s R. H. Stewart 1, W. Tollett Survey....	400	.....	.....	1261	12- 7-29	Topped salt plugged 1228-1261 ft.
Westexas O. &. Royalty Corp. et al's Negro Orphanage 1, Chas. E. Rivers Survey.....	361	3043-....	3916-3980	4610	5- 9-30	Shale.
Geo. L. Pace et al's B. G. Dickey 1, J. C. Clark Survey	458	2849-2945	.....	4404	2- 5-30	Shale & shells.
Big Indian O. & Dev. Co.-Tidal Oil Co.'s R. J. King 1, Wm. Barnhill Survey	525	2626-2875,	4118-4270	4907	10-14-30	Woodbine 4538-44, 4892-4907.
Golden Oil Co.'s J. D. Adrian 3, Hallmark Survey.....	...	1866-....	....-3128	4168	2-..-25	Quit in Woodbine.

FIRST

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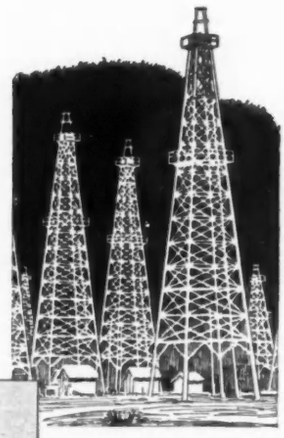
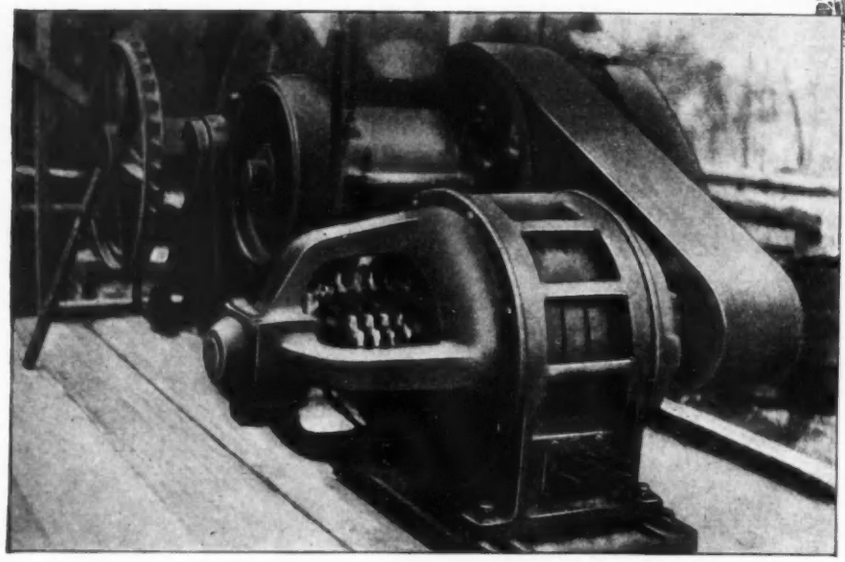
G-E TYPE MTO





The first motor in Joiner Field — a G-E Type MTO, two-speed, wound-rotor, oil-well motor rated 55/25 hp., connected to Lufkin speed-reduction unit on the Pilot Oil Company's lease. View shows motor partially installed

FIRST in a great oil area that is gushing forth to the tune of eighty to ninety wells per week — THE GENERAL ELECTRIC TYPE MTO OIL-WELL MOTOR! That's acceptance of a proved, dependable product.

The Type MTO motor matches all power needs of a producing well — pumping, pulling, cleaning, bailing, swabbing, shaking-up, and even deepening. No matter what type of rig goes into action in Joiner Field — whether the old standard or more recent designs — Type MTO will meet its requirements. It's the most flexible drive you can use at a producing well; its worth has been proved by more than 19 years of service.

Accepted for Joiner Field — accepted in scores of other important oil developments — Type MTO merits your consideration.

Type MTO motors with unit control are available through G-E warehouses located near your operations. They are available in ratings of 35/15-, 50/20-, 55/25-, and 75/35-hp., for either 50- or 60-cycle supply, and suitable for either direct or belt drive. All sizes have the same general characteristics. Your nearest G-E office will be glad to provide complete information.

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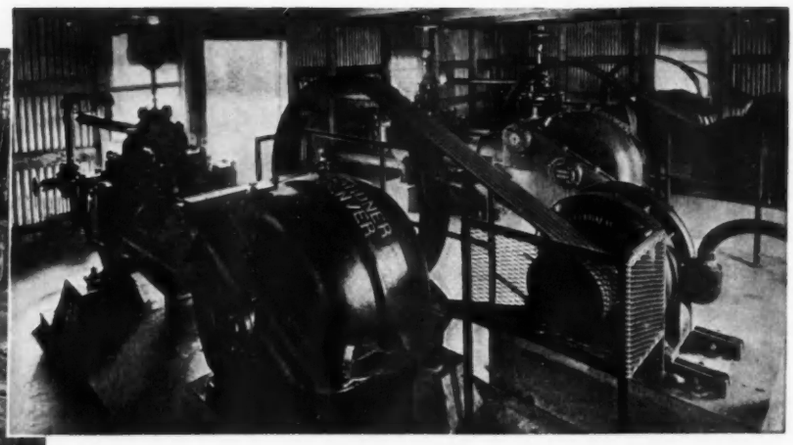

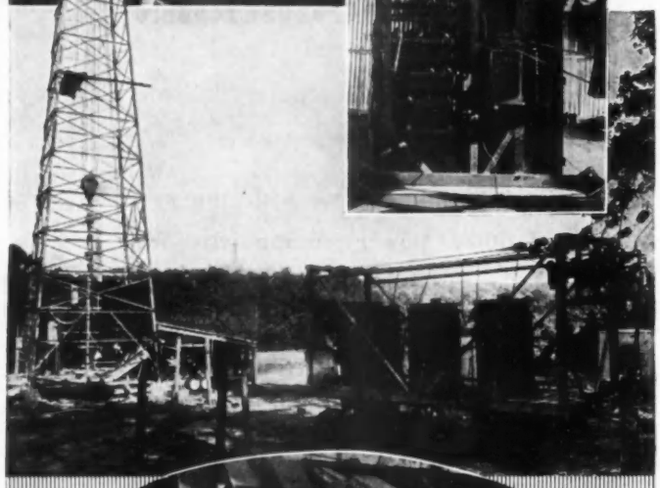

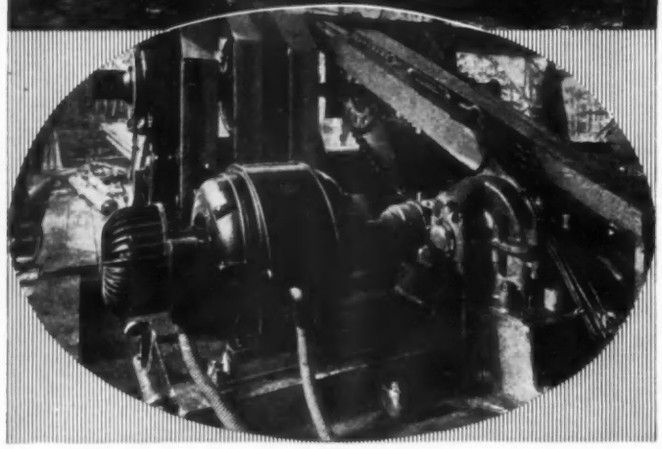

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Electrification of East Texas Field

In East Texas, as in other great oil fields, Allis-Chalmers motors with their steel frames, triple impregnated windings, and indestructable rotors are working at every sort of job in connection with drilling, pumping and transportation. These include two speed types for pumping and drilling, variable and constant speed star delta types, special protected type drilling motors, enclosed fan-cooled motors and explosion-proof motors as well as standard general purpose types for driving pumps, compressors, etc.

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OIL and Electricity are symbols of this stalwart industrial age. They first meet in the oil field, pipe line and refinery. They supplement each other in great factories that are producing the things that enable the masses of people of our generation to have conveniences unknown to the kings of a few generations ago. We identify different ages in history as the stone age, the iron age, and so on. Truly, oil and electricity will ring down the centuries as the twin symbols of this industrial age, when science is revealing to man a glimpse of his latent possibilities. Nowhere do we see the giant, Electricity, to greater advantage than in the oil field, where he lends his hand in ushering a brother giant into this world.

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GULF STATES
UTILITIES COMPANY

General Offices

BEAUMONT, TEXAS LAKE CHARLES, LA.

Economies Imperative in East Texas Field Work

(*Continued from page* 41)

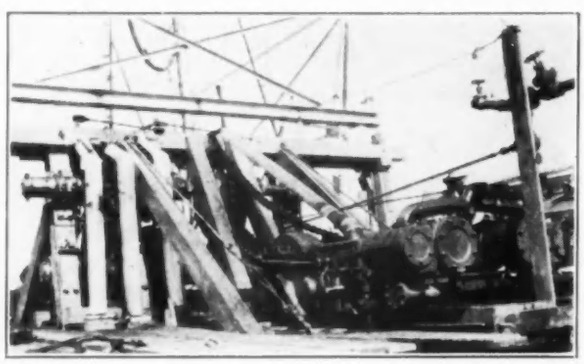
of three 1000-barrel steel tanks at a distance of several hundred feet from the well.

Arkansas Fuel Oil Company's and Yount-Lee Oil Company's F. K. Lathrop A-1, discovery well of the Longview or Lathrop district of the field, completed as a 10,000-barrel producer at 3587 feet, January 26, 1931, and subsequently produced for considerable period at rate of 5000 to 10,000 barrels daily, was within proration allowance at the middle of June, flowing through 38/64-inch choke and 2½-inch tubing with 270 pounds working pressure. The pine wood derrick with which it was drilled remained over it, and the flow lines led to a separator mounted on a short wooden platform. There was a line and vent through which gas could be discharged into the air, but another gas line from the separator was being used in conveying the gas through a nearby housed meter for use in drilling operations on other leases. The oil was run through a gravity line from the separator to flow tanks located several hundred feet away.

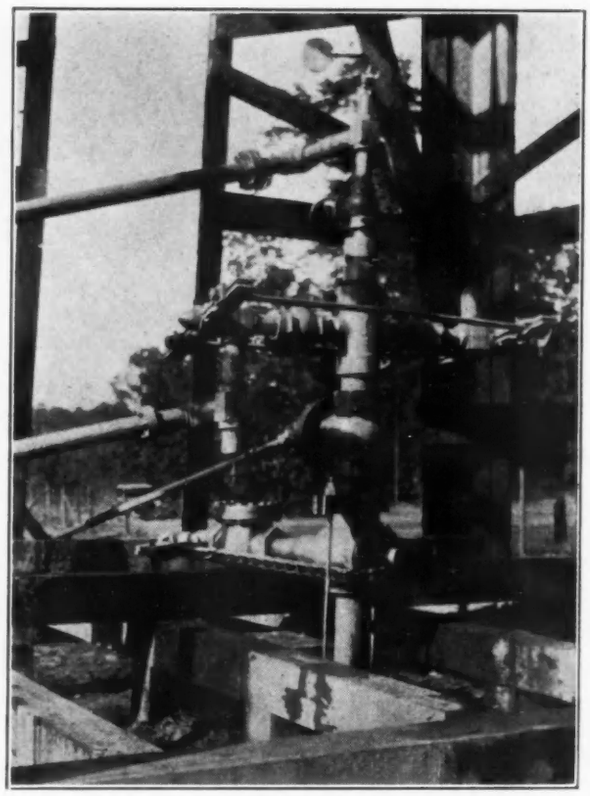
Humble Oil & Refining Company's L. D. Crim 1, discovery well of the Kilgore district of the field, completed December 28, 1930, for 15,000 barrels initial production at 3652 feet, and subjected like the Lathrop discovery well to large daily production for a period before initiation of proration, was flowing at the middle of June through one-fourth-inch choke and registering 230 pounds pressure. A wooden derrick, used by Ed Bateman et al in drilling this wildcat producer, later sold to Humble Oil & Refining Company, stood over the well. The separator was at a distance of about 200 feet from the well, on the side of a hill, with lease tanks at the foot of the hill.

Drilling Methods and Equipment

Derricks: During the early development of the East Texas field steel derricks were exceptional, the many independent operators particularly using mostly wooden derricks. The field is in country timbered with pine trees, and nearby saw mills make the price of lumber attractive. The wooden derricks are ordinarily 122 feet high, with 22 or 24-foot base. But there is a growing tendency to steel derricks, with both 122-foot and 94-foot types in general use. The 94-foot combination drilling and pumping derricks are proving especially popular. Gulf Production Company and Humble Oil & Refining Company, leaders in drilling activity in the field, are among the operators using steel derricks exclusively. As stated previously, it is common for wells to be left without derricks upon completion, the derricks being moved to other locations for drilling other wells.



Lucey engine, Emsco draw works and Moore derrick on Tidal Oil Company's Jack Bean 2, at Kilgore.



Kilgore discovery well, Humble Oil & Refining Company's L. D. Crim 1, flowing through quarter-inch Shaffer bean. The fittings are Hughes.

The steel derrick, of course, has certain definite advantages offsetting the somewhat higher original cost. It has a higher salvage value, being moved readily from one location to another. It also reduces fire and storm hazards. An argument in favor of the steel derrick was offered recently when a storm blew a wooden derrick over, broke connections, and resulted in the well running wild.

Fuel: Both gas and oil are common as fuel in the East Texas field, the operator in each instance determining the most economical arrangement available. Although crude oil has been marketed in recent weeks for as little as 10 cents per barrel, that used as fuel oil commanded a price of about 75 cents per barrel in the early history of the field, while it currently brings from 30 to 50 cents per barrel. Although these latter prices are above the regular market prices for crude in the district, there is certain expense involved in sale of the oil for fuel on drilling wells, the seller pumping it to the well, gaging it, and maintaining the accounting involved. Instead of oil, however, it is sometimes more economical to use gas purchased either from a nearby lease owner or from a gas company serving the field, too much expense being involved in building a pipe line to an oil source.

Contract Drilling

A large percentage of drilling is done by contractors. The wells are all drilled by the rotary method. The contractors at present are receiving $2.50 per foot as a rule, with different arrangements as to whether the well owner or the contractor furnish the water and dig the slush pit. The above price represents a shrinkage from the prices of

$3 and $3.50 per foot which prevailed during early development of the field.

Water for drilling was obtained during the past winter, spring and early summer from creeks and other surface supplies, as well as from a shallow sand found at depths of 180 to 240 feet. A dry summer has virtually exhausted those supplies, however, and at least pending heavy rains, operators are obliged in many instances at present to drill to depths of 900 to 1100 feet, in which horizon good water wells are completed.

Drilling machinery ordinarily includes 12 by 6¾ by 12 slush pumps, 12 by 12 twin-cylinder drilling engines, and either three 66 or 72 horsepower boilers or two of 100 horsepower.

Various kinds of drilling bits are in common use. Either disc or roller bits are frequently used in drilling the Pecan Gap or Austin chalks. Some fishtail bits are in use, but a more common product is the "wing" or "four-way" bit, which has four cutting edges. Four-inch drill pipe is commonly used.

Only two strings of casing are used, approximately 200 feet of 10-inch being cemented with 25 to 65 sacks of cement, and 3600 feet of 6⅝-inch, 24-pound pipe being set on shale above the oil sand and cemented with 150 to 300 sacks. After cement has hardened around the 6⅝-inch casing drilling is continued about 20 feet, more or less, into the sand, and then two to five joints of 5 3/16-inch perforated or slotted liner are set on bottom, the liner extending a short distance into the 6⅝-inch casing.

Finally, a blowout preventer is set on the well head, and a full 3600-foot string of 2½-inch tubing is run to a point near bottom. Clear water is then pumped down through the tubing and back up through the casing around the outside of the tubing until drilling mud has been washed out. If the well does not then begin flowing it is swabbed in.

The time required for building a derrick, drilling and completing a well is about 30 days. Time spent in actual drilling ranges from 15 to 20 days, ordinarily, although some wells are drilled in considerably less time.

Drilling Costs

The cost of a completed well is approximately $21,000, exclusive of tanks and pumping equipment, this figure representing new equipment. A large amount of used equipment has been employed in the field in the past, by major companies as well as smaller companies and independent operators, the equipment having been moved in from all directions—from North Louisiana, Arkansas, Oklahoma, and from all parts of Texas. Since the field now has over 1500 or drilling wells, however, it has already drawn heavily upon available used equipment and supplies, and new material is finding a growing market.

National jack on Hunt lease being pulled by the unit shown in picture at top. The extra pipe on derrick is flow line from a water well, operated with air.

Seven wells are pumped from this Lufkin central power unit on the H. L. Hunt lease, Joiner field.

The above figure on the cost of an East Texas well is increased to approximately $24,000 when tanks are included, again figuring new material. Tubing being figured in with the above costs, it is possible to install new pumping equipment on the well at an additional expense of about $5000, including sucker rods and either gas engine and standard rig or an electric unit. The pumping equipment, therefore, increases the cost of the well to a total of approximately $29,000.

The above costs are figured on the basis of the following items:

Labor, Materials and Well Equipment

Drilling, 3600 feet at $2.50 per foot	9,000
Derrick: wood $1000, steel $1200 and up	1,200
Fuel oil, 75 barrels daily for 20 days: 1500 barrels at 50 cents per barrel	750
Water	500
Pipe:	
200 feet of 10-inch	400
3600 feet of 6⅝-inch	4,000
3600 feet of 2½-inch tubing	1,200
Cement, two strings casing, average about	300
Cementing	300
Hauling, freight	1,000
Christmas tree	800
Separator, installed	1,000
Flow lines, connections	500
Total	$20,950

Tanks

Fuel oil tank, 1000 barrels	$900
Line from fuel oil tank to pipe line	500
Lease tanks, two, 1000-barrels each	1,800
Total	$3,200

Pumping Equipment

Installed and complete, including sucker rods, either gas engine and standard rig or electric unit	$5,000
Total cost, completed, pumping well	$29,150

The costs as listed above are subject, of course, to variations, depending upon quality of equipment and materials. But careful checking with various operators indicates they are fairly representative figures.

Pumping Wells

The production of the East Texas field is from Woodbine sand, and the salt water which lies in the sand below the oil is regarded as figuring actively along with gas in expulsion of oil through the well. As the oil is withdrawn it is replaced by the water. Wells which are not drilled

Reed Roller Bearing Bit used all the way down. (This is the crew that drilled Anderson & Hughes, Kentzleman No. 3 at Chandler, Oklahoma in fifteen days less time than any well heretofore drilled in that field.)

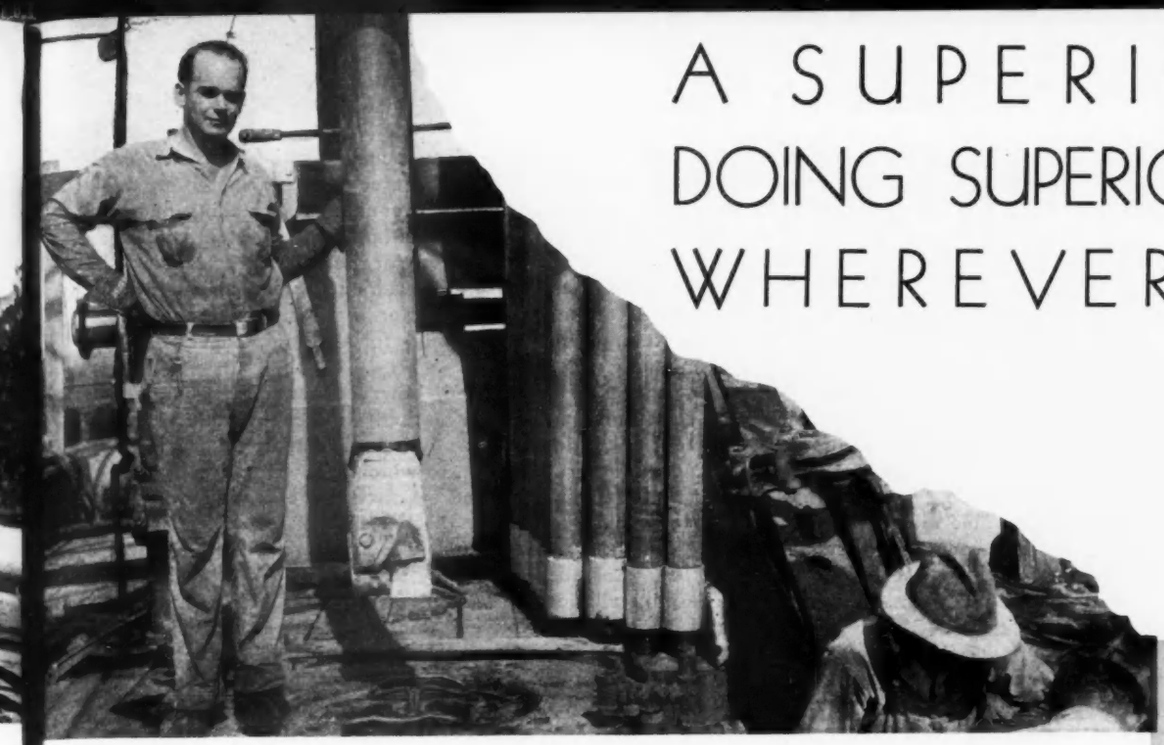
'ROUND THE WORLD BOTH WAYS

From Oklahoma to Iraq . . . either east or west . . . north or south . . . in practically every rotary field of the world . . . the Reed Roller Bearing Rock Bit . . . has entrenched itself . . . and proven conclusively . . . to be a bit . . . beyond compare. . . . The unit cutter assembly . . . Full roller bearing . . . above the eight inch range . . . and semi-roller bearing below that range . . . is a proven economy . . . over other bits . . . heretofore introduced . . . Wash plates in the head are replaceable . . . many cutter parts are salvageable . . . bevels of side cutters are hard surfaced with Reedite . . . and teeth are pitched for fast penetration . . . have a self-cleaning . . . self-sharpening action . . . last longer . . . dig faster . . . and because of roller bearings . . . has less tendency to slide . . . all of which . . . makes for speed . . . economy . . . and durability.

LESS COST PER FOOT OF HOLE DRILLED

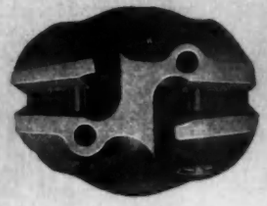
REED ROLLER BIT CO.

HOUSTON LOS ANGELES OKLAHOMA CITY NEW YORK CITY



A SUPERIOR BIT DOING SUPERIOR WORK WHEREVER USED

Reed's Replaceable Blade Fishtail Bit . . . is not just another scrape type bit . . . of the fishtail type . . . but it is the product . . . of much research . . . accurate knowledge of drilling requirements . . . and is a finished product . . . of a plant . . . where engineering . . . metallurgical . . . and mechanical knowledge . . . have been developed . . . to the highest degree . . . The head is a one piece forging . . . Placement of water courses is correct . . . and slush volume impinges directly upon cutting surfaces of blades . . . Blades are of forged alloy steel . . . heat treated . . . hard surfaced with Reedite . . . (No broken ends of blades left in hole) . . . Blades are double tapered . . . outwardly . . . and upwardly . . . are held securely in head by double tapers . . . which tighten blades in head . . . as drilling progresses . . . Then forged steel bolts . . . in head . . . and passed through blades . . . give insurance against dropping blades . . . when loosening for redressing . . . Drilling Superintendents . . . Contractors . . . Drillers . . . and Rough Necks . . . who have used this bit . . . give it their unqualified endorsement . . . Its use will convince you too . . . of its speed . . . economy . . . and durability



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too deep into the sand are now yielding pipe line oil. But as the field becomes older and as the oil is withdrawn salt water will accompany the oil production in increasing proportions until it will constitute more than 90 per cent of the fluid, provided operation of the wells is continued under such conditions.

It is anticiapted by some of the operators, however, that many of the wells will be shut down when they begin yielding material quantities of salt water, because it will be too expensive to pump them. At prices now prevailing for East Texas crude it would certainly not be practical to pump wells in which it would be necessary to lift consequential quantities of salt water, if any, in recovering the oil. It is pointed out in this connection, however, that a relatively high percentage of recoverable oil in the Woodbine sand will come out as flowing production, as demonstrated by fields of the Mexia-Powell district of East Central Texas; and that the wells will already have impressive production records to their credit when the problem of pumping them arises. It is in line with this reasoning that the operators are in many instances leaving the wells without derricks following completion.

In the Mexia-Powell district fields 60 to 75 per cent of the recovered oil was flowing production. Wortham development began in December, 1924, and by the end of 1925, only a year later, the field had produced 16,059,981 barrels of the 22,131,772 barrels recovered through 1930. That first year's production constitutes approximately 73 per cent of the present total recovery. Richland was discovered in December, 1923, and large production began with opening of 1924. The field had produced 6,633,210 barrels to the end of 1930. Of that amount 3,455,523 barrels or about 50 per cent had been produced by the end of the first year, 1924; and 5,260,619 barrels or 79 per cent had been recovered by the close of the second year.

Deep production was discovered at Powell in January, 1923, but it was not until May, 1923, that the major drilling campaign began. The field to the end of 1930 had produced 104,667,347 barrels. Of that amount 62,947,970 barrels or 61 per cent had been recovered by the end of 1924, or about 1½ years after major development started; while an additional year increased the recovery to 80,043,271 barrels, or 76 per cent of the above total.

Mexia field was discovered late in 1920, but development was on a limited scale throughout 1921, gaining momentum early in 1922. The field at the end of 1930 had produced 89,274,593 barrels. Of that total 39,720,749 barrels or 44 per cent was produced by the end of 1922, the first calendar year of major production, and 57,775,025 barrels or 64 per cent had been recovered by the end of the following year.

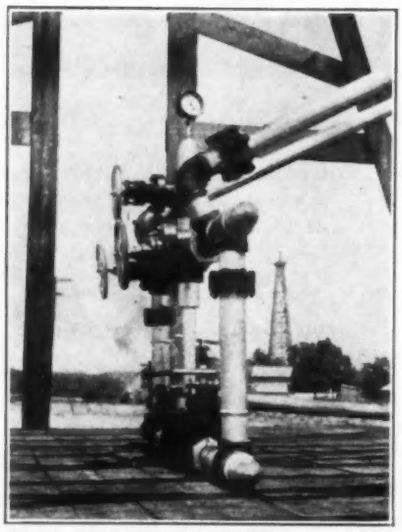
The East Texas field, like the above fault zone fields, is producing from Woodbine sand, and it is generally expected to have a similar percentage of recoverable oil as flowing production, although there are certain differences in conditions which must be taken into consideration, as pointed out in a separate paper in this issue.

Pumping Equipment

The economic situation which leads some operators to believe that many of the wells will not be pumped at all logically presages general demand for maximum economies in such pumping installations which may be installed, both as to costs of the equipment and operating costs. For this reason various observers foresee the moving into this region of much used pumping equipment, including numerous standard rigs, with steel bull wheels, steel walking beams, and belts, with gas engines which can be converted into oil engines, those old fashioned installations being versatile to the extent of affording facilities for pulling rods, tubing, liner or casing, for drilling deeper, or for abandoning wells.

It is not to be inferred, however, that new equipment will not find considerable market. In fact there are already some modern installations in the field, particularly in the Joiner (southern) district, to which area virtually all pumping wells are still confined. A survey at the middle of June showed that the Joiner district had 60 producers which would not flow, with more than 30 pumping units installed or being installed, including some on wells still flowing. These installations were mostly on the east side of the field, and because of relatively thin oil sand on that side the wells showed average production around 300 barrels daily, although wells farther west are expected to average 500 to 1000 barrels daily because of thicker sand bodies and higher fluid levels. Incidentally, the wells which are farthest east will be the latest to be affected by salt water, which will come in from the west; and this factor, offsetting the lower production, will tend to equalize the profits from wells in the eastern portion of the field as compared with the more westerly wells. The actual experiments with pumping wells has indicated that production decline will be slow and attractive under normal conditions.

Equipping of wells to pump in the Joiner field as practiced already has involved expenditures of from $3000 to $6000 each, depending upon type and quality of equipment used. Long stroke pumps powered by oil and gas engines and electric motors are being used generally in the early installations, although one electric central power pumping unit has been installed in the Joiner district by H. L. Hunt et al for operating a group of closely located wells.



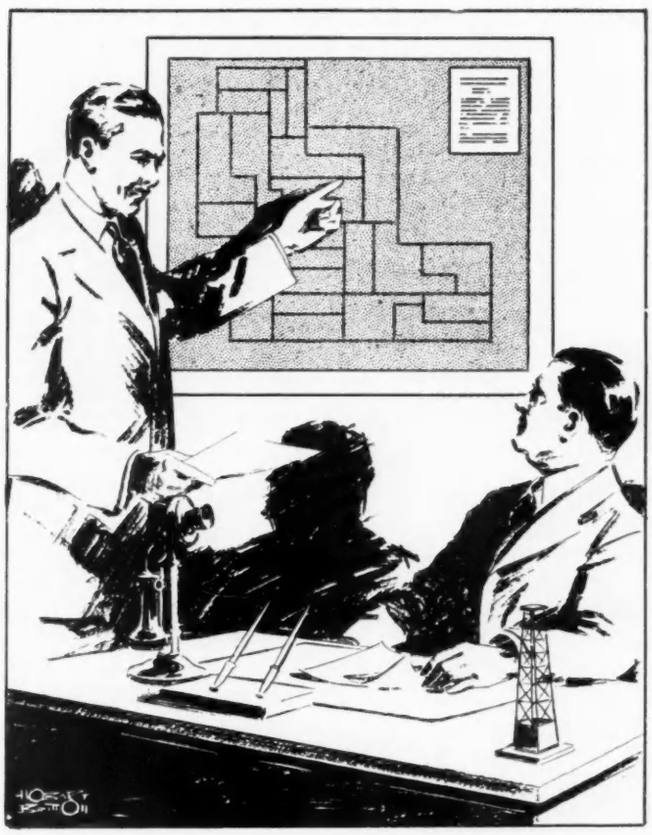
Hook-up of Sinclair Oil & Gas Company's Florence Blanche Wilson 1, Joiner field.

Salt Water Disposal

Aside from the above mentioned considerations indicating that many wells may not be pumped at all because of excessive salt water reducing profits below levels commensurate with low crude prices, there is also another important problem in connection with anticipated pumping of wells when the flush production life of the field is gone and when salt water has inundated the oil sand. This problem is that of disposing of the large volumes of salt water. Officers of the state have already posted up signs in the field issuing warnings against pollution of the streams, and engineers are attempting to work out successful plans for disposing of the salt water. The great volume of water which is anticipated will call for extraordinary methods for effective handling. In the meantime, water produced at present by a few wells on the west side of the field is being disposed of by pumping it into sands. Whatever the method which may be devised for handling this waste water, it will add to the ultimate cost of lifting the East Texas oil, further decreasing the margin of profit on that portion which must be pumped to the surface.

WHO'LL BE WHO IN OILDOM?

Who'll be who in oildom when normalcy arrives? It will be the companies that keep their lines intact, maintain their equipment, and engender into their organizations a high morale.



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OIL MEN CAPITALIZE ON NORVELL-WILDER'S 20-YEARS EXPERIENCE » » »

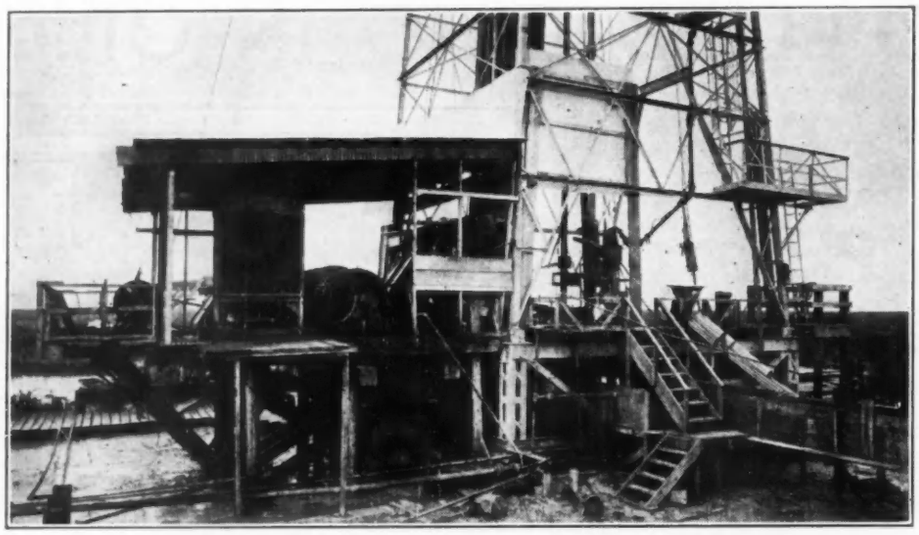
RIGHT NOW farsighted oil men are tuning up their companies to take advantage of the future. They come to the NORVELL-WILDER SUPPLY COMPANY in order to benefit from 20-YEAR'S EXPERIENCE in selecting equipment that is standard, modern, and in tune with other equipment on the lease. They know that NOW, when prices are low, is the time to build up their operating units to high efficiency.

CALL THE NORVELL-WILDER » » » MAN FIRST

Back of him are the traditions built around 20-years successful experience supplying oil companies. He is taught to serve you night and day; to respond to your quick needs with every ounce of energy in him. He does.

WHETHER YOU WANT SOMETHING IN A HURRY . . . OR JUST WANT TO FIGURE ON POSSIBLE FUTURE NEEDS . . . CALL THE NORVELL-WILDER MAN FIRST.

Norvell-Wilder *Supply Company*



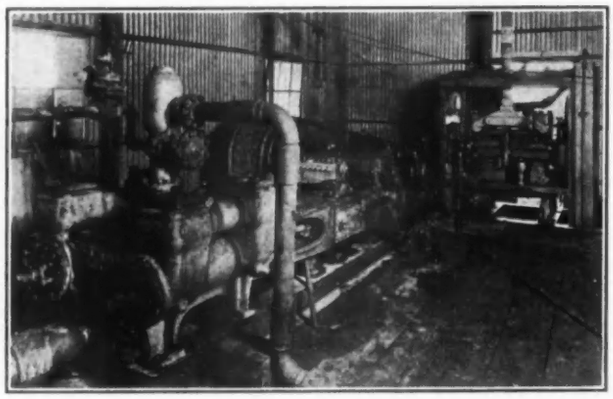
Set-up of Portable Rig Company's heavy drilling outfit on McFadden 1, Liberty County, Texas

Cheap Fuel Costs Featured Deep Coastal Test

By WM. V. GROSS
Staff Representative

WHEN you have drilled a hole to a depth of 7663 feet with a fuel cost—including lubricant as well as prime mover—averaging 79 cents per foot, you have done something.

But when that well is a rank wildcat, located eight miles from the nearest production prospect, five miles from a road, and in the heart of a swamp where it is necessary to build the derrick floor 10 feet above ground to keep the double deck Oil Well rotary table from floating away, and still you have held the fuel and lubricating cost to 79 cents per foot of hole drilled—you'll be called a liar if you mention it.



Encased hook-up between auxiliary Waukesha motor and Wilson-Snyder mud pump

While this Liberty County project on the McFaddin property turned out to be a dry hole instead of a gusher, it really does constitute an important step in the progress of petroleum engineering—that school of the profession, rather, which has advocated more or less successfully the adaptability of gasoline power for drilling deep, remote tests, for locations where brackish marsh water rendered use of steam both dangerous and expensive.

Petroleum engineers for the major company which did the drilling, stood by the prospect—on the scene of action—from beginning to end, and to these is due much of the credit for the record in wildcat drilling economy established by the well.

A table showing gasoline consumption from the time the well was spudded in January until completion late in May, serves to show, in some respects, how the rate of consumption varied directly with the increase of depth. It follows:

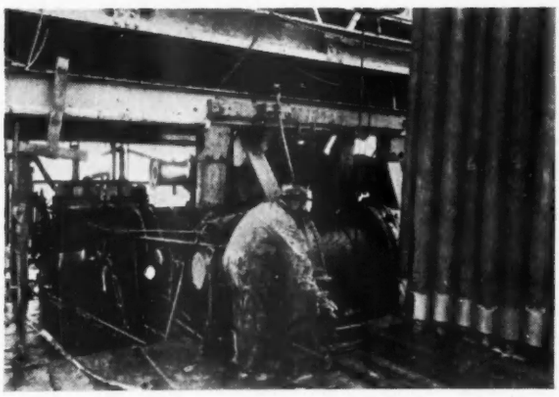
Gasoline Consumption Data

	Gallons
January	3,755
February	6,265
March	10,625
April	18,780
May (21 days)	6,270
Total	45,695

By using barges to bring the fuel to the well, it was

10

minutes out for adjustment in five months of operation!



THAT'S the answer to your question: "Is there a heavy, dependable reverse clutch unit on the market suitable for deep rotary or cable tool drilling?"

On the world's deepest gasoline engine rotary drilled well, bottomed at 7663 feet after five months of drilling and coring, a Portable Rig Company Extra Heavy 42″ x 6″ Reverse Clutch Unit required but 10 minutes shut-down time for adjustment in five months of steady operation. Thousands of stops and starts, thousands of reverses in making-up and breaking-out, gruelling punishment every foot of the way—yet only ten minutes out for adjustment! The record is even more remarkable when it is considered that 12¼″ hole was carried to bottom, and that 6″ drill stem was used every foot of the way.

It proves pretty conclusively that you can safely check your portable rig requirements, or your heavy duty reverse clutch requirements to the Portable Rig Company, for the past .... years builders of equipment that has established one notable drilling record after another!

Specifications of

EXTRA HEAVY 42″ x 6″ REVERSE CLUTCH UNIT

Clutch unit may be driven by any suitable power, it being transmitted to clutch through sprocket, pulley or any other type of power transmission.

Entire clutch unit is mounted between two box type steel pedestals, each equipped with double Timken roller bearings. Complete unit is secured to foundation by means of heavy turnbuckles, hooked, in eyes and cast integral with bearing caps.

Entire clutch unit is mounted on six-inch shaft of special analysis steel ground to close limits of accuracy for anti-friction bearings.

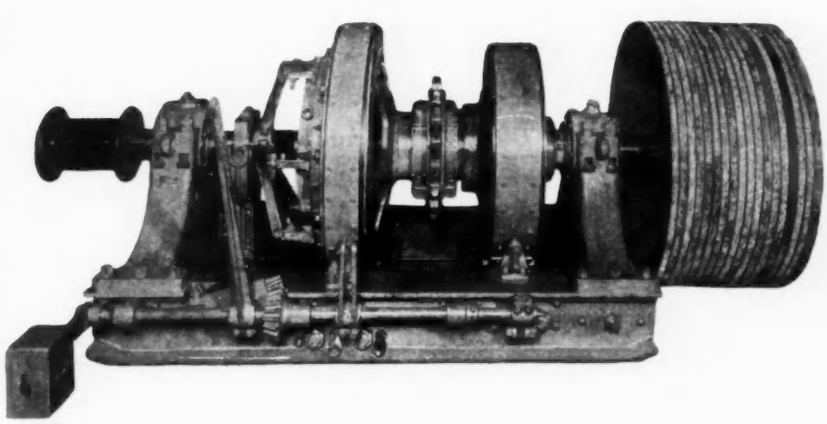
Forward clutch is single plate split type, 42″ diameter, with friction segments both sides. It may be removed for relining without disturbing shaft or bearings.

Clutch housings on which sprocket or pulley is mounted to transmit power is carried on two American roller bearings, which provide ample capacity for shock loads incurred.

Reverse clutch is of oil bath type with steel cut gears and hardened pinions. Housing construction is floating type. Method of applying reverse friction band allows over 90% of friction surface in contact with drum.

All thrust to shaft is taken up in one bearing mounting, eliminating set collars for thrust purposes.

Entire construction is of steel, assuring strength and long life.



PORTABLE RIG CO. INC.

HOUSTON, TEXAS

WEIGHT *checked*

EVERY FOOT OF THE WAY

The Weight Indicator on McFadden No. 1 —World's record gasoline engine rotary drilled well. Depth 7663 feet.

by...

MARTIN-DECKER

AUTOMATIC RECORDING WEIGHT INDICATOR

Every foot of the way down on McFadden No. 1 through tricky sands, gumbo, shale, and other typical Gulf Coast formations The Martin-Decker Automatic Recording Weight Indicator was the means of controlling the weight on the bit to exactly the right point.

The result was a straight, clean hole, and no bad fishing jobs due to twist-offs. When the well was abandoned, 5723 feet of hole stood open—rather a remarkable record in itself in the Gulf Coast.

The ability of Martin-Decker Instruments to measure, control and record weight on various drilling operations, and to do it with absolute accuracy, has won for them universal acceptance in the world of petroleum.

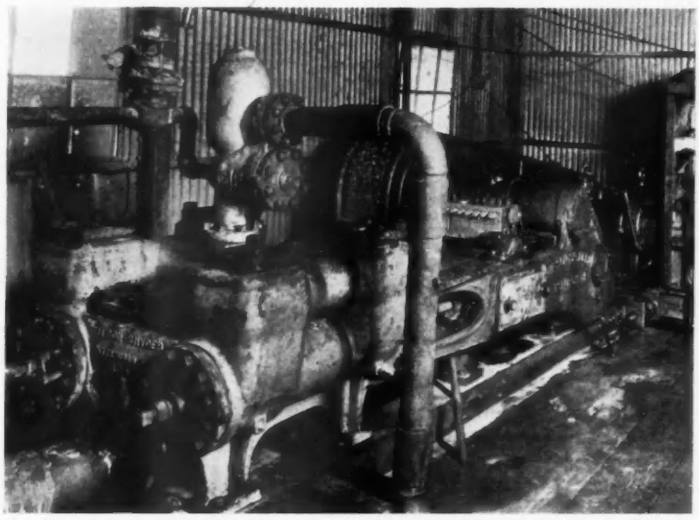
THE WEIGHT INDICATOR
MARTIN DECKER CORP.
LONG BEACH CALIFORNIA

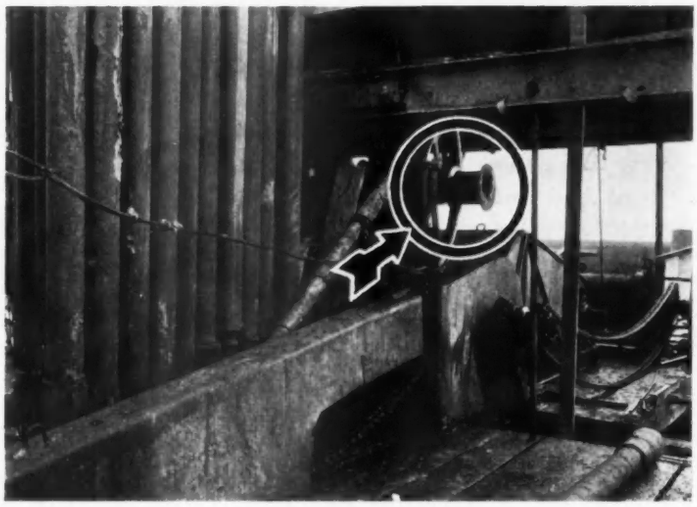
Mid-Continent Distributors
Reed Roller Bit Company
Houston, Texas

Foreign Distributors for Weight Indicator
Oil Well Supply Company
Pittsburgh, Pa.

WEIGHT
RECORDING
MEASUREMENT
& CONTROL

PROUD *to have* PARTICIPATED!





★ MacCLATCHIE VALVES

★ MacCLATCHIE CATHEADS

Owing to the widespread use of MacClatchie Mud Pump Valves in the Gulf Coast Territory, it was natural that they should have shared the honor of drilling the world's deepest gasoline engine rotary drilled well. No definite record of their performance on this well is available, and all that members of the crew recollect is that they "lasted as long as usual, which is a heck of a long time." Incidentally, no one ever heard of a Gulf Coast derrick man who was too bashful to raise the devil with pump valves that don't stand up!

MacClatchie Catheads, also, are visible on almost every Gulf Coast Rig. Their simplicity, ease of operation, positiveness, and extreme safety won them a place on the rig that drilled McFadden No. 1. On dozens of trips out of the hole it broke out the tool joints unfailingly. At all times it stood ready to break out tough connections. It finished the job in first class condition, ready for the next location.

MacClatchie is proud to have participated in furnishing the equipment that drilled McFadden No. 1, and even more proud of the performance of its products on record-breaking tests under difficult conditions.

MacCLATCHIE

MANUFACTURING CO., Compton, Calif.

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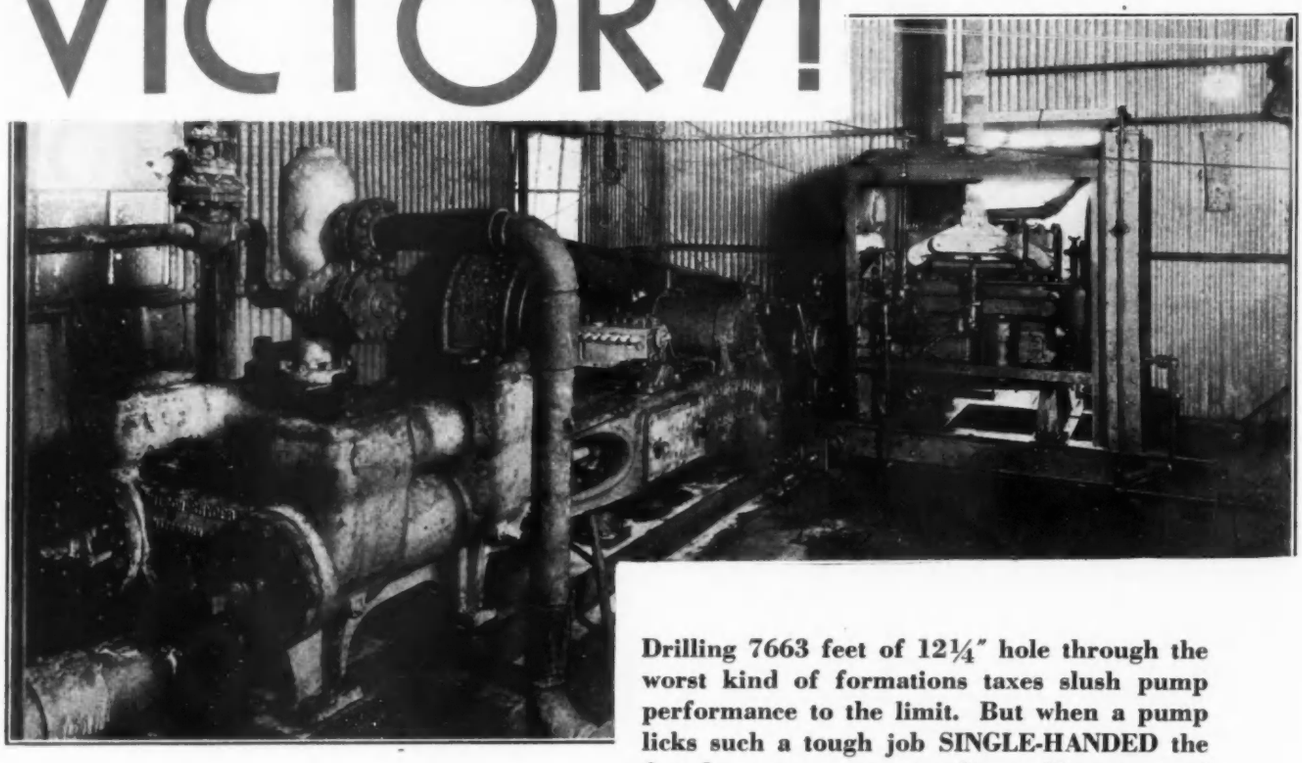
★ ★

Valves Stocked by all Mid-Continent Continental Supply Stores

WILSON-SNYDER PUMP SCORES SINGLE-HANDED

VICTORY!



Drilling 7663 feet of 12¼″ hole through the worst kind of formations taxes slush pump performance to the limit. But when a pump licks such a tough job SINGLE-HANDED the feat becomes an outstanding achievement of the highest order.

WILSON-SNYDER
6x16 POWER
SLUSH PUMP

The Wilson-Snyder No. 16 Power Pump shown in the picture has just won such a victory. Down on the Gulf Coast, drillers of the world's deepest well (by gasoline engine powered rotary rig) depended solely upon it for continuous and unfailing circulation to prevent a stuck drill stem. Adding to the difficulty of the job was the fact that 5723 feet were open hole drilling.

Experienced operators know they can completely depend on Wilson-Snyders to come through victorious against any kind of tough drilling job. They know the W-S Slush Pump has the power, capacity and endurance to give them extended periods of uninterrupted, economical efficient service. And because these facts have been proven time after time by actual field service more than 300 W-S Slush Pumps are operating in the Gulf Coast territory today.

3
Stores in East Texas

From our stores at Kilgore, Joinerville and Gladewater operators in this territory can get immediate sales and service on Wilson-Snyder pumps and parts. Also complete stocks of oil field material and equipment.

WILSON SUPPLY COMPANY

1412 Maury St.
Houston, Texas

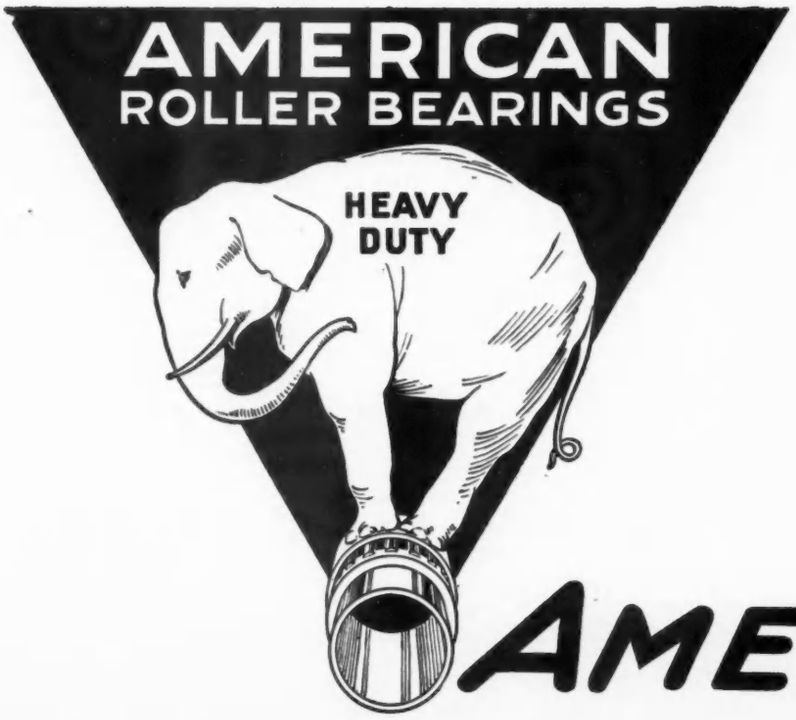
OIL and GAS WELL SUPPLIES

BRANCHES
Luling, Beaumont, Pettus, Barbers Hill, Kilgore, Joinerville, Gladewater, Texas, and Shreveport, La.

For any kind of drilling

the best

FOUNDATION is the right HEAVY DUTY Roller Bearing



Whether drilling is wild or tame — gruelling or easy — deep or shallow, American Heavy Duty Bearings simplify and speed the work.

These bearings served as the foundation of the rotary and of the reverse clutch in the remarkable McFadden Beach well. Our hats are off to those responsible for adding this unusual chapter to the history of wild-catting.

American Roller Bearing Co.

PITTSBURGH, PENNA.

Pacific Coast Representatives

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Edward D. Maltby Co.
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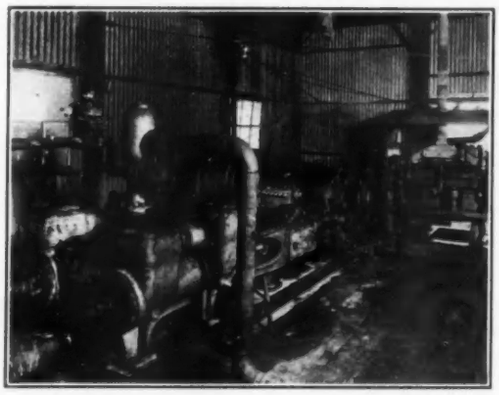
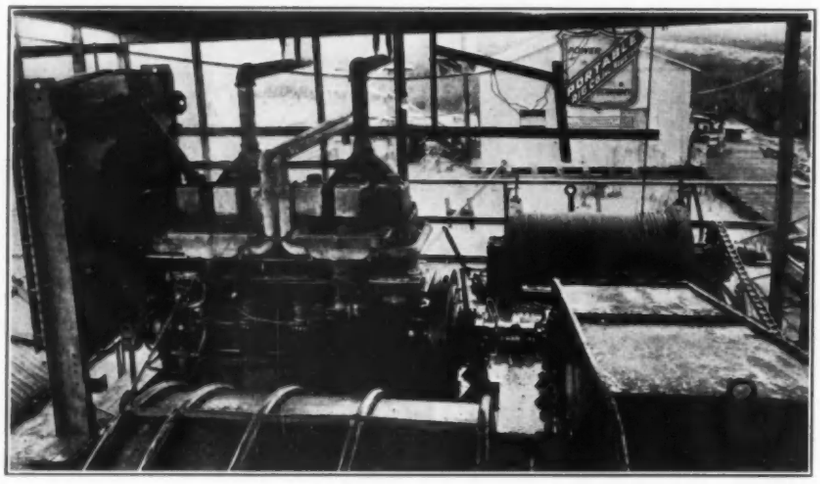
AMERICAN



WAUKESHA POWERED THE RIG ▼ ▼



with

325 HP Model 6-LRO

and

120 HP-WKS

Oil Field Engines

Waukesha Engines took over the big job on McFadden No. 1—and came off with real honors. One Waukesha Model 6-LRO, 325 Horse Power, furnished the power for rotary, draw-works and sand reel. Even when the hole reached the 7663 foot level, with more than 242,000 pounds dead-weight on the drilling line, the big Waukesha Engine handled the load with ease and a reserve of power. During the entire drilling job, which extended over five months, repairs and adjustments on the big engine were negligible. Valves were ground once, the butterfly valve on the carburetor was adjusted once, and a new fan bracket was installed. That was all.

Mud circulation depended entirely upon a Waukesha Model WKS, 120 Horse Power. This engine was connected to a No. 16 Wilson-Snyder mud pump (the only one on the job), and despite the terrific load and long grind, it required not a single adjustment or a penny for repair expense.

An idea of the steady flow of power produced by these two Waukesha Engines may be gathered from the gasoline consumption figures. In five months of operation, 45,695 gallons of gasoline were consumed. All but a few barrels of this quantity were put through the two Waukesha Engines.

No power is more dependable, flexible or economical on well drilling work than that furnished by Waukesha Engines. On wildcat locations especially, as proved again by their performance on the world's deepest well drilled by a gasoline powered rotary, they may be relied upon to finish the job in record time with a minimum of outlay for maintenance.

WAUKESHA MOTOR CO.

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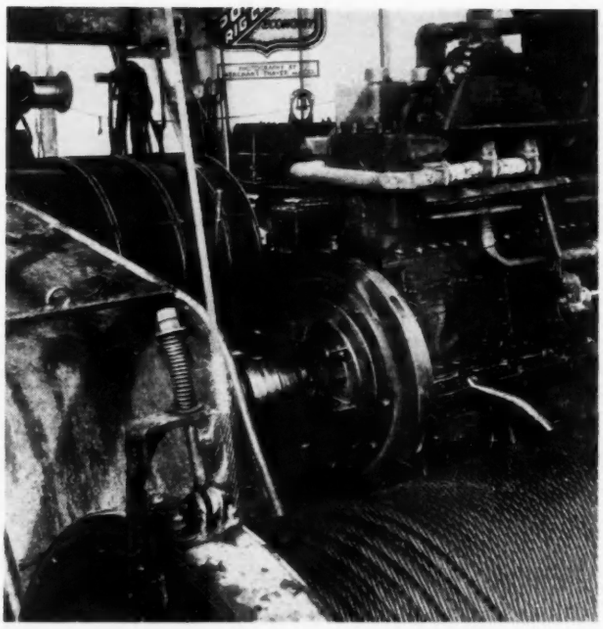
MANUFACTURERS OF HEAVY DUTY INTERNAL COMBUSTION ENGINES FOR OVER A QUARTER CENTURY



3 TWIN DISC CLUTCHES

REG. U.S. PAT. OFF

performed unfalteringly

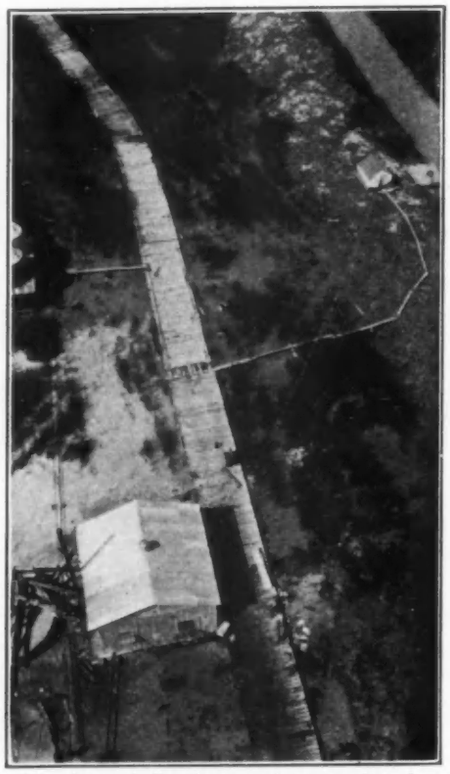
Three Twin-Disc Clutches—one on the main drilling engine, one on the Portable Rig Company's Extra Heavy Reverse Clutch Unit, and one on the mud pump engine —performed their work unfalteringly throughout the gruelling job of drilling the world's deepest gasoline engine rotary drilled well.

No adjustments whatever were necessary on the drilling engine clutch, a Twin-Disc Model 7475-1, 24″ single plate clutch, used on a Waukesha Model 6LRO, 325 horse power engine. And, no adjustments whatever were necessary on the mud-pump engine clutch, a Twin-Disc Model B-1-18, 18″ single plate clutch installed on a Waukesha Model WK 120 horse power engine. Only two adjustments, requiring but ten minutes shut-down time, were required on the Twin-Disc Model 7444-1, 42″ single plate clutch built into the Portable Rig Company's Extra Heavy Reverse Clutch Unit. This clutch bore the brunt of thousands of starts, stops and reverses during drilling and coring operations, and was proclaimed faultless by the drilling crews.

When it is considered that 12¼″ hole was carried to bottom with 6″ drill pipe, and when the thousands of starts, stops and reverses are counted in, the record of these three Twin-Disc Clutches is outstanding. A direct-connected steam rig could have performed no better. Again on this record well Twin-Disc Clutches proved beyond all argument that they have the stamina to get the job done in record time with a minimum of shut-down time for repairs or adjustments.

ON
McFADDEN
No. 1

TWIN DISC
CLUTCH COMPANY
RACINE, WIS.



Air view of floating roadway to location. Operators were unable to move heavy equipment over same, and a canal for barges had to be dug.

procured for a price of 12 cents per gallon, delivered at the well, making the total cost of gasoline for the 7663 feet $5380.40.

Consumption of lubricating oil, which also was barged in to the location, amounted to 24 barrels of 55 gallons each, or a total of 1320 gallons. The oil was delivered at 55 cents per gallon, running the lubricant cost up to $726. Total cost for gasoline and lubricating oil amounted to $6109.40.

With light drilling equipment, perhaps the above figures would not have been so pleasing to the operator's budget cutters. But you can't drill below 7000 feet with light equipment.

Heavy equipment was used on the McFaddin well, and the flexibility of the Waukesha in handling the 242,600 pounds of suspended drilling paraphernalia is the outstanding feature of the accomplishment. According to one petroleum engineer who agreed on this point and who watched the well as closely perhaps as the resentful alligators in the swamp, the six cylinder LRO Waukesha pulled the heavy loads without a stutter, even when a stuck drill stem below 6000 feet necessitated a pull which ran the Martin-Decker indicator up to 90 points. Seventy-five points on one of these contraptions is supposed to be the danger line—100 points is supposed to cause the derrick to automatically be transferred to the salvage department.

Weight data on the McFaddin well will give some idea of what was demanded of the gasoline power in the way of flexibility, especially when it is considered that the last 5723 feet of drilling was open hole work. Of course the table given below does not include all the suspended weight, nor does it include weights added when the drill stem was lifted against the resisting pull of wall friction and the like, but the major items are there. There are enough to convey the thought. Someone else who doesn't mind headaches can figure all the theoretical stress caused by stuck drill stems, heavy mud, et cetera, if he chooses, which he probably won't.

Weight Data

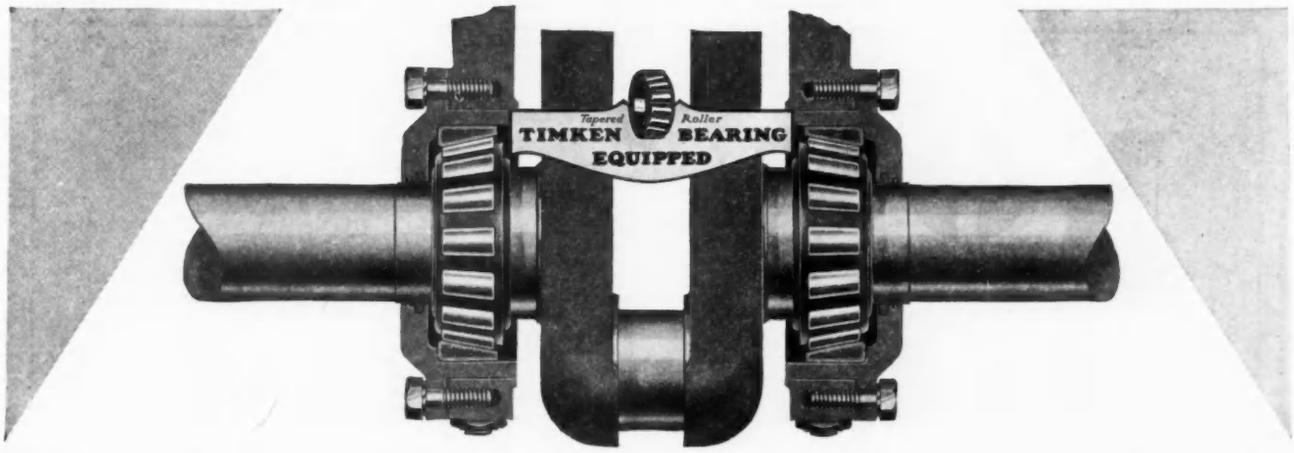
	Pounds
7663 feet of 6⅝ 24.20 lb. National drill pipe.	186,848
248 Reed full hole tool joints, 144 lbs. each.	35,712
Boykin 66 traveling block	5,240
Union Tool Ideal swivel	2,700
Byron Jackson Triple X hook	2,800
Baash-Ross kelly joint	6,300
Reed drill collar and Robishaw bit.....	2,000
Byron Jackson elevator and bails.....	1,000
Total net weight	242,600

Handling of the 5723 feet of open hole presented interesting aspects with reference to maintaining circulation and other open hole problems commonly encountered. The pump unit on the well was a Wilson-Snyder 6 by 16 mud pump equipped with D. & M. pistons. A Waukesha gasoline engine, equipped with a Herringbone reduction gear with an arrangement for adjusting the chain between the pump and the engine.

Contrary to what is sometimes the practice in drilling below 5000 feet, only six lines were used to lift and lower weight suspended from the derrick until a depth of 6500 feet had been attained. Then the block was restrung with eight lines, a rig-up which lasted to the end of the drilling job. This fact calls for identification of the clutch used which would permit such practice. It was a Portable Rig Company 6 by 42-inch reverse clutch, twin disc, single plate, 42-inch clutch. During the operation it was necessary to touch it only twice for adjustment, consuming a total time estimated at less than 10 minutes. An open hole of 5723 feet of 12¼-inch means that sudden, inexplicable stresses and strains attributed to conditions of the well wall below the bottom of the casing must be partially compensated for by a properly functioning power delivery rate factor.

A data sheet on performance of the gasoline engines used for running the Emsco draw works and the pumps showed only three kayo's, two of which didn't amount to a great deal. Engine repairs consisted of grinding the valves once, adjusting the butterfly valve on the carburetors, and installing a fan bracket. Almost automobile performance up to what the car makers advertise. Necessity for installing the new fan bracket wasn't explained by the engineers—things with human interest rarely are, but it was probably caused by a Liberty swamp mosquito who wasn't looking where he was flying.

Crew of the McFadden well, top row, left to right: C. E. Gathright; L. P. Polk; L. Harrell; Rex Parish, derrick man; L. L. Smith, driller; B. D. Bell, superintendent. Middle row, left to right: A. W. Cook; E. Christofferson; W. H. Cherry; C. D. Moneyhan, derrick man; C. L. Locke, driller. Bottom: J. H. Cuthrell and W. T. Dabbs, petroleum engineers.



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Leading manufacturers of gas and steam oil field engines and air compressors mount the crank shafts of their equipment on Timken Bearings for smoother, more efficient and dependable operation.

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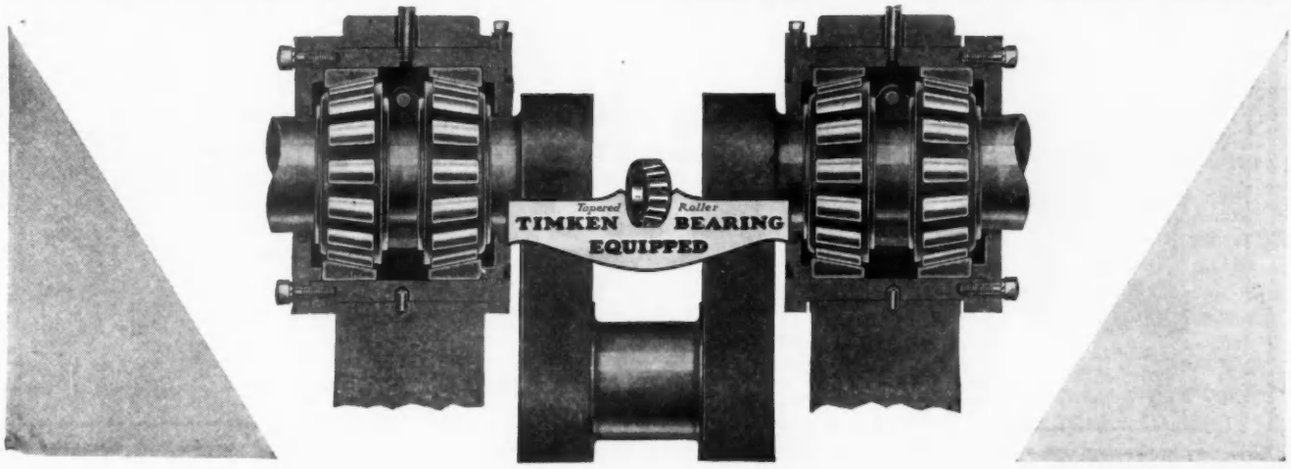
TIMKEN *Tapered Roller* **BEARINGS**



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LeBus tools have been built from demands that have come up on the job . . . problems have been taken up and ironed out by experienced engineers and drilling and production men to result in LeBus products . . . Specialties for saving money on fishing jobs and other drilling and production problems.

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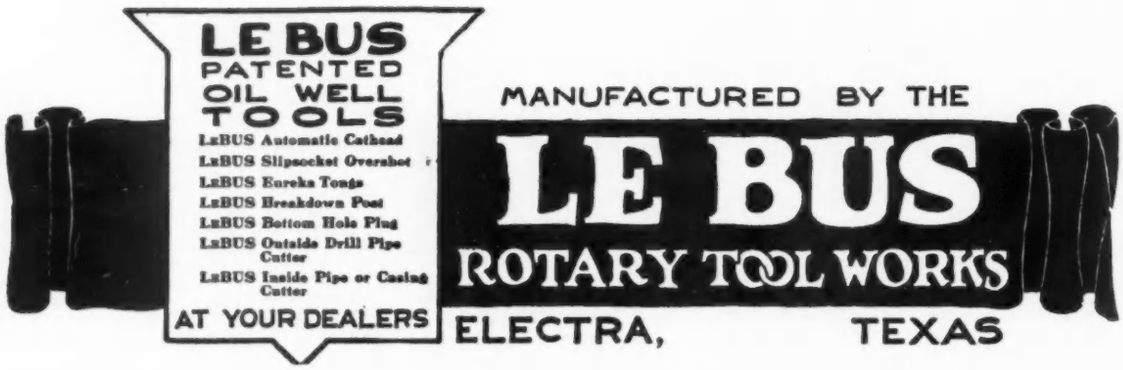

Woodbine Sand Production In East Texas Compared With Fault Zone Pools

(*Continued from page* 55)

The above estimate of ultimate production per acre for the East Texas field is based upon the following factors: Porosity tests have been run on the oil sand of the field by several companies, and it has been found to have porosity of 20 per cent. The capacity of a sand with 20 per cent voids is 8,700 cubic feet per acre-foot, or 1,550 barrels of oil per acre-foot. Having an estimated average thickness of approximately 25 feet, the oil sand of the East Texas field, therefore, is calculated to be capable of holding in its pores about 38,750 barrels of oil per acre. Of that estimated original oil content of the sand, of course, there is only a limited percentage which will be recoverable. The most general estimate among geologists and engineers familiar with the conditions in the East Texas field and with the Woodbine sand in general, is that the ultimate recovery will be approximately 50 per cent of the original amount in the sand. This percentage of recovery would constitute an average yield of 19,375 barrels per acre. If such yield is actually attained this vast field, with its proven area of approximately 110,000 acres, will ultimately produce 2,131,250,000 barrels of oil—over two years' supply for the whole United States at the present rate of consumption. With only 40 per cent recovery the yield would be 15,500 barrels per acre, or 1,705,000,000 barrels for the field.

The highest yield among the fault fields has been at Powell, where the recovery had already amounted to 39,497 barrels per acre by the end of 1930—a yield of 877 barrels per acre-foot, since the average pay sand thickness was approximately 45 feet. The lowest recovery has been at Currie, 13,017 barrels per acre through 1930. The average yield per acre for all the fields of the district had reached 29,195 barrels by the close of 1930. The recovery for each of those fields is shown in the following table:

Field.	Productive area (acres).	Bbls. Prod. to 1931.	Bbls. per acre through 1930.
Powell	2,650	104,667,347	39,497
Wortham	715	22,081,921	30,883
Richland	240	6,633,216	27,638
Mexia	3,720	89,274,593	23,998
Nigger Creek ...	170	2,957,973	17,811
Currie	420	5,467,219	13,017
Total	7,915	231,082,269	29,195

In connection with the above forecast for the East Texas field it is of interest to cite figures and estimates of H. B. Hill and Chase E. Sutton on the Powell field[1]. As determined from core samples obtained in the field the upper sand at Powell showed a porosity of 30 per cent. A porosity of 25 per cent was assumed, however, for the two lower sands. In their calculations, therefore, Hill and Sutton used an average pay sand porosity of 26.88 per cent. Using that figure, and determining the volume of the sand from well logs, they calculated the probable original content of the reservoir at 244,150,205 barrels of oil. Allowing production to an economic limit of 4,000 barrels per well per year, it was estimated that the ultimate recovery from the Woodbine sand would reach 106,211,815 barrels, representing 43 per cent of the original oil deposit. This estimate has virtually materialized already.

[1]U. S. Bureau of Mines, Bulletin 284.

Peaks of Field Activity and Production

Despite proration efforts, which have been employed with only partial success, the flush East Texas field has attained even higher peaks of daily production and field activity than Powell, which outstripped all the other fault zone fields in rapid development and high flush production. The peak of field work was reached in East Texas on June 15, 1931, when Rusk and Gregg Counties had total operations of 614, including 360 active tests, 187 derricks and rigs, and 67 locations. These figures represent only the work in Rusk and Gregg Counties, which contain a large percentage of the proven area. There were, however, additional operations in the portions of the field lying in Smith and Upshur Counties. Production in the large East Texas field has been consistently above 300,000 barrels daily for more than two months. During the week ending July 15 all previous records for the field were exceeded, an average output of 408,786 barrels daily from 1,231 wells being maintained for the seven-day period. That quantity of oil was produced despite adherence by some operators to proration allowances and in spite of the fact that numerous wells had little or no market outlet. At the time the above record was set, it appeared fairly certain that even higher peaks would be reached in the succeeding weeks.

Some of the larger production and drilling peaks of the Mexia-Powell district are tabulated herewith for comparison with the East Teaxs field:

Field.	Peak Daily Production (Bbls.).	Peak Field Activity (Total Operations).
Powell	356,000	233
Wortham	182,830 (82 wells)	339
Mexia	176,000	341
East Texas Field, to July 15, 1931	408,786 (1,231 wells)	614*

*Exclusive of Smith and Upshur Counties.

Development and Production Practice

With respect to methods of drilling and operating wells in the East Texas field, some valuable criteria are offered by the fault zone fields. For the great amount of drilling and the varied conditions under which leases were developed and produced in those pools offer ample data as to methods which are economically and financially sound in fields of similar type.

In determining methods which are considered sound, of course, there are differences of opinion, with two distinct view points involved: (1) that of the operator, who is interested primarily in the financial return on his investment; and (2) that of the general public, which is interested in conservation of the natural resource and consequently in the ultimate recovery of oil. Paradoxically, perhaps, these separate interests are sometimes at variance, and the soundness of a development policy may prove questionable from the one standpoint or the other. The view point of the public, which might in a sense be spoken of as the economic viewpoint, demands strict adherence to accepted scientific methods and the most complete efficiency possible; and this sense of public interest in the oil supply as a natural re-

source has expanded greatly during recent years. The viewpoint of the operator, on the other hand, is one which does not always permit of unswerving adherance to the ideal of maximum possible recovery at all costs, his profits and his continued existence as a producer being affected by the market price of his oil and various other economic factors and expediencies. Both of the above viewpoints must be given due consideration in prescribing a method or a practice for a field.

Rapidity of Development and Production

It has been contended by those favoring proration in the East Texas field that the slower withdrawal which would be practiced under restricted production would result in higher percentage of recovery. At least some operators and observers, however, have expressed the opinion that rapid withdrawal, while tending to trap oil by coning of wells, does not necessarily reduce the ultimate percentage of recovery. The loss of possible production from coning, it is argued, may be at least partially offset by the more thorough washing of the oil sand with hot salt water under conditions of rapid withdrawal. Aside from the above technical considerations, in which the general public is interested, as previously stated, there are economic factors which are of equal if not greater concern to the operator. Unlike a field of nominal size, the vast East Texas field has direct, controlling influence on the national crude market structure, and the rate of withdrawal of its production has influenced and will apparently continue for a long time to influence the price, the market value fluctuating inversely with the rate of production. Under this condition it is to the advantage of the East Texas operators to hold production down, regardless of whether or not they increase the ultimate recovery in doing so; in fact it would likely be to their advantage financially to restrict output even if the ultimate recovery is lowered thereby.

Spacing of Wells

As a rule, fewer wells are required to fully drain an oil horizon under conditions of highly porous sand, strong gas pressure and sharp dip; and conversely, more wells are needed when the sand porosity is low, gas pressure weak and dip of the sand slight. The sand porosity and the gas pressures being similar to if not smaller than those encountered in the fault line fields, and the average dip of the sand being slighter, the East Texas field will theoretically require closer spacing of wells than the fault fields needed in effecting a given percentage of recovery, despite the unusually intensive drilling in those pools. On the other hand, however, the various economic considerations involved in East Texas are in contrast with those which obtained in the fault fields. In the first place, the wells are deeper, around 3600-3700 feet, as against maximum of about 3000 feet in the fault fields, and the drilling and production costs are proportionately higher, demanding greater production per well for a given profit, and consequently fewer wells for a given tract. In the second place, the average sand thickness in East Texas being smaller than in the more important fault fields, the recovery per well is relatively lower, and increase of the per-well yield will necessitate drainage from greater area by wider spacing. Finally, the East Texas production has been bringing some of the lowest prices of the present century, below 10 cents per barrel in some instances; whereas the fault fields produced oil which sold for relatively high prices, some of it above $2 per barrel. The low prices in East Texas demand the highest possible recovery per will, and consequently the wells must be spaced so as to drain as much territory as possible.

The following table illustrates well-spacing in some of the fault zone fields:

Field—	Production through 1930	Number of wells	Producing acres	Av. No. Acres per well	Av. Recovery per well, barrels
Powell	104,667,347	675	2,650	3.9	111,943
Mexia	89,274,593	643	3,720	5.7	138,840
Wortham	22,081,921	355	715	2.0	62,202
Nigger Creek	2,957,973	79	170	2.1	37,442

It is generally agreed that there was considerable overdrilling in the fault fields. Leon J. Pepperberg[2] stated, for instance, that the 170 productive acres of the Nigger Creek field would have been drained as effectively by 50 wells as by the 79 which were actually drilled, in which event each well would have served 3.4 acres instead of 2.1 acres, the average as developed.

With respect to spacing of wells and rapidity of development in the Powell field Hill and Sutton[3] made an investigation of development and production practices on four separate tracts, and they arrived at some very interesting conclusions. The tracts, designated in the report of the investigation as A, B. C, and D, were selected to show, respectively, (A) close spacing and rapid development! (B) a line drilling policy, edge property; (C) drilling of wells along the property lines, favorable location; and (D) close spacing, late completions. The investigation showed results which were tabulated as follows:

	Number of wells	Acres per well	Probable ultimate recovery for lease, barrels*	Probable ultimate recovery per acre, barrels	Probable ultimate recovery per well, barrels	Estimated ultimate recovery per acre-foot, barrels	Estimated recovery of original content, per cent	Probable return per dollar invested, barrels
Tract A	19	2.43	3,814,184	82,558	200,746	1,587	63.5	2.4
Tract B	8	3.12	1,064,116	42,564	133,014	967	36.7	2.0
Tract C	11	3.85	3,038,286	71,742	272,208	1,195	41.2	2.5
Tract D	19	2.31	2,450,886	55,702	128,994	977	42.8	2.0

*Assumed economic limit, 4000 barrels per well per year.

The figures in the last column on the right, constituting return in barrels of oil per dollar invested, were determined by calculating total investment on each tract as the cost of drilling the wells plus an average production cost of 30 cents per barrel of oil. The estimated ultimate recovery was then divided by that amount, giving the ultimate barrels recoverd per dollar invested, the figure shown.

Results of the above investigation of the four tracts at Powell were interpreted by Hill and Sutton in the following conclusion:

RECOVERY.—1. Close drilling, approximately 2.25 to 2.5 acres per well, together with rapid development, will show the largest recovery in barrels per acre and in percentage of original content removed; likewise it will give the quickest return of investment and profit.

2. The above policy will also result in the earliest appearance of water and consequently increased production costs during the latter portion of the tract's life. This will naturally increase the economic limit and may cause the abandonment of a property when oil is at a premium unless the water is properly controlled.

3. Although the return per dollar of investment of tracts developed as stated in (1) is entirely satisfactory from a general standpoint, it will not be as large as that from more conservatively drilled areas.

4. The policy of drilling line wells only during the early period of development reduces the ultimate recovery from the tract and the recovery per acre. The benefits derived therefrom are purely financial to the operator of the tract; that is, the ratio of return to investment is greater than in tracts fully developed.

5. In properties developed as noted in (4) water is quite likely to

[2]American Association of Petroleum Geologists' symposium, "Structure of Typical American Oil Fields," Volume 1: paper on Nigger Creek Field, Texas.

[3]H. B. Hill and Chase E. Sutton: U. S. Bureau of Mines Bulletin 284, "Production and Development Problems in the Powell Oil Field, Navarro County, Texas."

Important Data on Larger Fields of Mexia-Powell District

(Excerpts from tables in Bureau of Mines Report of Investigations 3059: "Development and Production History on the Salt Flat and Other Fault Fields of East Central Texas," by H. B. Hill, E. V. H. Bauserman, and Charles B. Carpenter, March, 1931.)

	Mexia	Wortham	Powell
Age of surface beds	Midway-Eocene	Midway-Eocene	Midway and Navarro
Producing Zone:			
Character	Sand	Sand	Sand
Name	Woodbine	Woodbine	Woodbine
Age	Upper Cretaceous	Upper Cretaceous	Upper Cretaceous
Approximate dip near fault,°	3	1 to 1½	2
Fault Plane:			
Approximate dip	35° to 50°	45° to 55°	45° to 65°
Approximate displacement, ft.	200 to 400	300 to 600	400 to 560
Strike	N 30° E	N31° to 60°E	N20° to 30°E
Average depth of wells, feet	3000	3000	3000
Maximum No. of producing wells	544	322	827*
Gravity of oil, ° A.P.I.	35 to 36.5	39	36 to 38
Original oil-water contact below sea level, feet	2540 to 2550	2545 to 2570	2580 to 2610

*Includes wells producing from Woodbine and shallower depths.

Decline in Per Cent of the First Year's Production

Field.	First year.	Second year.	Third year.	Fourth year.	Fifth year.	Sixth year.	Seventh year.	Eighth year.
Powell	..	48	70	82	88	92	..	..
Mexia	..	47	69	80	86	89	93	94
Wortham	..	7	24	40	50	58	..	..

Illustration of interpretation of this table: The Powell field produced approximately 33,000,000 barrels of oil the first calendar year and approximately 17,000,000 barrels the second year. The decline is therefore 16,000,000 barrels or 48 per cent. During the third year the production for the field declined to approximately 10,000,000 barrels, a decrease of 23,000,000 barrels or 70 per cent of the first year's production.

follow the areas of greatest depletion and consequently to trap large quantities of oil in undeveloped portions of the tract.

6. Although a portion of the oil trapped as above may be recovered by later drilling, the cost of obtaining it is such that operators as a rule do not consider the expense justified by the return; consequently a large portion of the originally recoverable content is left in the ground.

7. The complete drilling of a tract immediately after the period of high initial production in order to avoid the usual period of low-price selling results in a more sustained decline curve and under favorable price conditions may permit recovery of a large portion of the return lost by the decrease of initial production. This policy, however, is not basically sound, as price fluctuations are ordinarily not dependent upon the specific area in which the operator may be interested but are governed by the national trend of production. Areas remote from the local field may therefore continue to force a decline of prices, although the conditions in the specific field of the operator may justify a rise.

8. Complete development of a tract (7) will, however, show a fair ultimate recovery, although the barrels per acre and barrels per dollar invested are not as favorable as in tracts where advantage is taken of natural driving forces during the early stages of production.

WATER CONDITIONS.—Close, rapid development tends to create water cones in the vicinity of each well, but does not result in trapping large quantities of oil, as the complete drilling of the tract prevents the existence of undepleted sand areas of large extent. Under such conditions, therefore, consistent plugging does not shut off major quantities of recoverable oil but should effectively reduce the water production.

2. A line-drilling policy during the high initial production period leads to a coning effect of the water plane, so that sand sections of large size are left undepleted.

Plugging work on such a tract will no doubt prevent the recovery of the trapped oil to some extent; however, if the plugs are carefully placed soon after water appears, the amount of oil extracted from the trapped areas may be increased materially.

3. Water encroachment follows the rate of depletion of the reservoir, with the natural result that tracts of high initial production show large amounts of water at correspondingly earlier periods than properties of lower initial production.

4. Methods that tend to increase the oil production chiefly by handling large amounts of water probably result in decreased recovery and high operating cost.

While the above data on development and production in the Powell field are of interest and of practical value for comparative purposes, they can be applied to the East Texas field only in a general way, considering the numerous crous differences between it and Powell. For example, the average pay sand thickness in East Texas is 25 feet; at Powell it was 45 feet. The porosity of the East Texas oil sand is 20 per cent; that at Powell ranged from 25 to 30 per cent. The ultimate recovery per acre in East Texas is estimated at 15,000 to 20,000 barrels; at Powell it has already been 39,497 barrels. The East Texas wells are 3600 feet deep; those at Powell from 2830 to 2980 feet. The price of East Texas crude has been below 10 cents per barrel in some instances; during the first three years of its history, the flush period, Powell crude ranged in price from 75 cents to $2.20 per barrel. All these factors must be considered in comparing the development and production methods in the East Texas field with those at Powell. Likewise, as stated previously, any fair comparison or con-

DISCOVERY WELLS, WOODBINE SAND FIELDS, MEXIA-POWELL DISTRICT, EAST CENTRAL, TEXAS

Field	Operator	Well	Initial prod.	Depth	Date	Completed	Remarks
Cedar Creek, Limestone County	Moutray Oil Co. and Reiter & Lewis	Lewis 1	160	2879	Aug.	30, 1927	Deepened to 2886 ft. and increased to 550 bbls.
Currie, Navarro County	Humphreys-Mexia Co.	Meador 1	400	2950	Oct.	1921	2nd well completed March, 1922.
Mexia, Limestone County	A. E. Humphreys and Mexia O. & G. Co.	L. W. Rogers 1	150	3100	Oct.	1920	Commercial gas prod. from shallow sands began 1912. 2nd Woodbine oil well completed in summer, 1921.
Nigger Creek, Limestone County	Transcontinental Oil Company	Rosson 1	2800	2846	July	8, 1926	
North Currie, Navarro County	Seay & Cranfill	West 1—20 mil. ft. gas		2976	Dec.	1921	First gas well.
	Sun Oil Co.	C. S. West B-1	850	2987	Aug.	1922	First oil.
Powell, Navarro County	Corsicana Deep Well Company	J. H. Burke 1	350	2963	Jan.	8, 1923	Second well completed May 8, 1923
Richland, Navarro County	McDonald Bros.	A. N. Brown 1	...	2950	Feb.	1924	Small pumper.
Wortham, Freestone-Limestone Counties	Boyd Oil Co. (A. E. Humphreys, pres.)	N. B. Boyd 1	750	3007	Nov.	22, 1924	Second well completed by same company Nov. 26, 1924.

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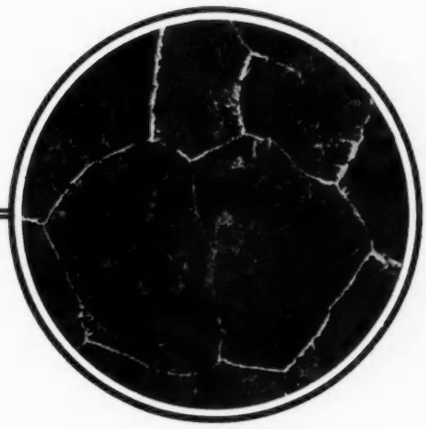
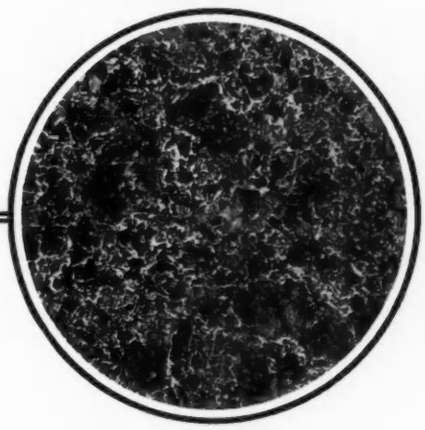
Under The Microscope

Looks Like This As "Forged"



And--Like This With Only A "Normalizing" Treatment



But--Imperial Grade "A" Looks Like This After Oilwell's *"Triple Treatment"*

OIL WELL SUPPLY CO.

Branch Stores in all Oil Fields

Subsidiary of United States Steel Corporation

1432

"OILWELL"

trast of East Texas with any of the fault zone fields must be made with discrimination and with recognition of all the conditions involved.

Corsicana-Powell District Shallow Fields, Navarro County

THESE shallow pools lie between and adjacent to the towns of Corsicana and Powell, Texas. (See accompanying map).

Condensed History

In 1894 traces of crude petroleum showed in a well which was intended as a source of water for the town of Corsicana, Texas. In 1896 the first producing well was brought in by a group of local people, and it ushered in not only the first commercial field in Texas but also the first important oil field in the Southwest. Until the discovery of "gusher" production at Spindle Top in 1901, Corsicana produced virtually the entire crude oil output of Texas.

First production at Powell was in 1900. The Powell shallow pool was at the extreme north end of the present Powell deep field.

Corsicana-Powell Shallow Production

Year	Corsicana	Powell	Total
1896	1,450	....	1,450
1897	65,975	....	65,975
1898	544,620	....	544,620
1899	668,483	....	668,483
1900	829,560	5,479	835,039
1901	763,424	37,121	800,545
1902	571,079	46,812	617,891
1903	401,817	100,143	501,960
1904	374,318	129,329	503,647
1905	312,595	131,051	443,646
1906	336,387	675,842	1,012,229
1907	276,311	596,897	873,208
1908	211,117	398,649	609,766
1909	180,764	383,137	563,901
1910	137,331	450,188	587,519
1911	128,526	373,055	501,581
1912	233,282	251,240	484,522
1913	158,830	283,476	442,306
1914	133,811	282,279	416,090
1915	143,275	237,410	380,685
1916	135,263	215,729	350,992
1917	131,828	196,855	328,683
Total	6,740,046	4,794,692	11,534,738
Corsicana-Powell (Combined)			
1918			361,980
1919			150,000
1920			530,000
1921			305,335
1922			245,705
Total			13,127,758

General Data on Individual Shallow Pools, Corsicana-Powell District

(Names and ages of productive formations; depths of wells; gravity of oil; type of structure).

1. **North Corsicana.**—This pool lies adjacent to the town of Corsicana on the north. The production is 38 gravity oil from depths of 900 to 1000 feet, the oil horizon being in the Corsicana sand of the Taylor formation, Upper Cretaceous.

2. **South Corsicana.**—Somewhat larger in area than North Corsicana, this field lies south and east of Corsicana and extends partially into the town. Production is from depths of 1000 to 1200 feet, being of approximately the same gravity and from the same sand as North Corsicana crude.

3. **Edens.**—A small pool located south of South Corsicana, Edens yielded gas from the Edens sand, found below the Nacatoch sand and above the Corsicana sand, near transition between Navarro and Taylor formations.

4. **Mildred.**—Principal production has been 22-23 gravity crude oil from the Nacatoch sand, lying in the Navarro formation about 250 feet from the top of the Navarro, at depths of 800 to 900 feet below the surface. There was some production of 37 gravity crude also from the Corsicana sand, Taylor formation, around 1600 feet. This field is associated with a northeast-southwest trending fault which runs parallel with the major faults of the Mexia-Powell district. The Mildred fault has the downthrow side and principal oil accumulation on the east.

5. **Clements-Buchanan.**—This small pool, located east of the extensive Mildred pool, yielded oil from the Nacatoch sand, similar to Mildred production.

6. **Combest.**—Located north of the town of Powell along a continuation of the major fault which controls the Powell field, Combest had oil and gas accumulation in the Nacatoch sand, Navarro formation, principally on the downthrow (east) side of the fault, at depths of 900 to 1000 feet.

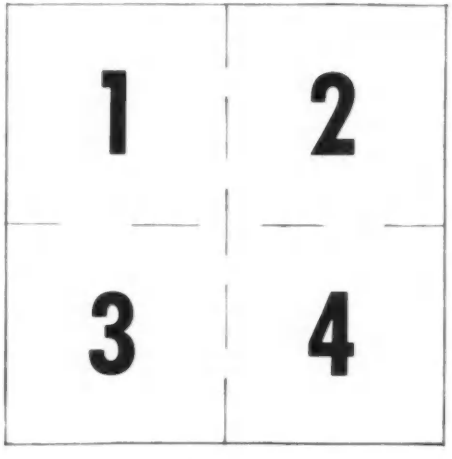
7. **White.**—A small pool a short distance west of Combest, White had production similar to that at Combest, probably from the Nacatoch sand.

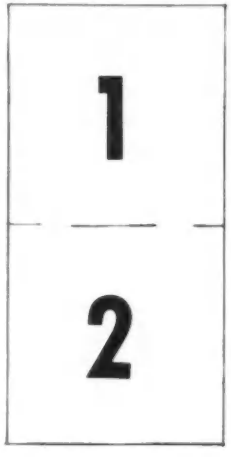
8. **Burke.**—Located near the town of Powell, at the extreme north end of what later became the Powell deep field, the Burke pool development was started at the beginning of the twentieth century. The shallow Burke production was 21-23 gravity crude, found in the Nacatoch sand, Navarro formation, at depths of 850 to 950 feet, accumulation being associated with the major fault which also gave rise to the Powell deep production.

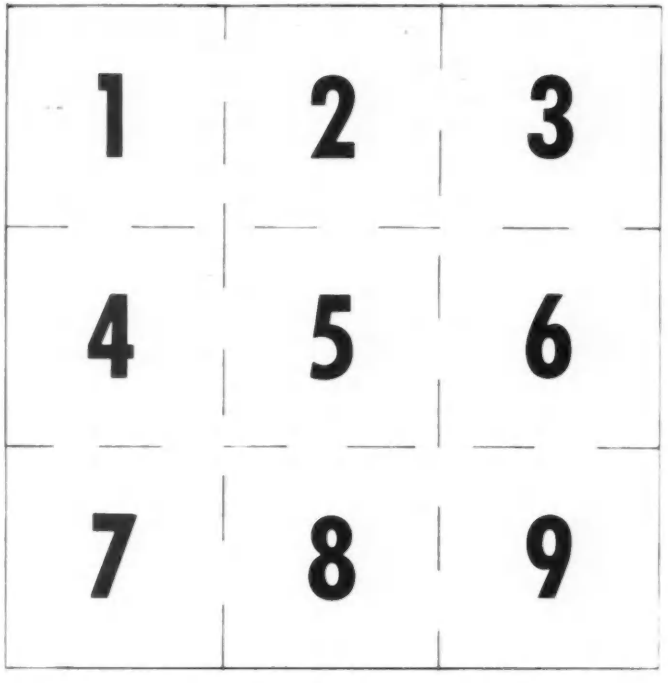
9. **Witherspoon-McKie.**—Like the Burke pool, the Witherspoon-McKie shallow pool occupies a part of the present Powell deep field. But like Burke pool, Witherspoon-McKie shallow production was first developed many years before discovery of the Woodbine sand oil in the immediate vicinity. Witherspoon-McKie oil and gas production came from Nacatoch sand horizons, Navarro formation, at 825-875 feet and at 925-975 feet.

10. **Powell Shallow Production.**—While Burke and Witherspoon-McKie pools ante-date the deeper Woodbine sand production of the Powell field, development of the latter during and after the year 1923 resulted in discovery within its boundaries of new shallow productive horizons in Nacatoch and Corsicana sands, and those shallower horizons are discussed in treatment of the Powell field.

Maps on this order too large to be entirely included in one exposure are filmed clockwise beginning in the upper left hand corner, left to right and top to bottom as many frames as required. The following diagrams illustrate the method.







RAINS

WOOD

UPSHUR

SMITH

VAN ZANDT

HAYNESVILLE

MT. SYLVAN

TYLER

WHITEHOUSE

STEEN

GREGG

WILLOW CARRIZO

EAST TEXAS OIL FIELD

Sabine River

UPSHUR

MARION

HARRISON

GREGG

CADDO

CADDO

HOSSTON

PINE ISLAND

DIXIE

WASKOM

BETHANY

CEDAR GROVE

SHREVEPORT

EAST TEXAS OIL FIELD

WOODBINE SAND

CARRIZO WILCOX

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THE OIL WEEKLY, HOUSTON, TEXAS

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CADDO

HOSSTON

PINE ISLAND

DIXIE

CADDO

BOSSIER

BELLEVUE

MINDEN

COTTON VALLEY

CLAIBORNE

HOMER

WASKOM

CEDAR GROVE

SLIGO

ELM GROVE

BETHANY

BIENVILLE

KINGS

GIBSLAND

ARCADIA

T21N

T20N

T19N

T18N

T17N

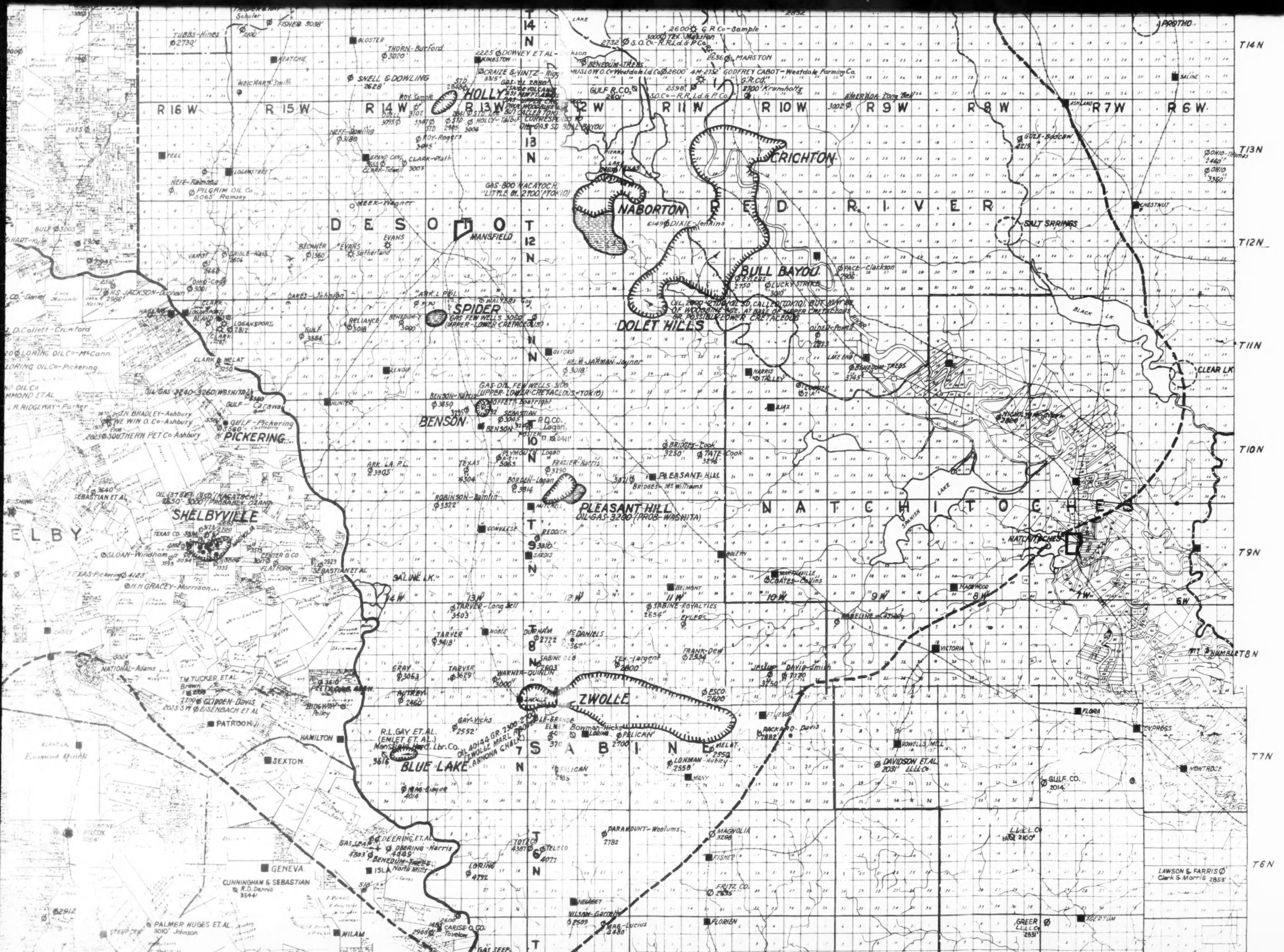
T16N

T15N

T14N

HENDERSON
ANDERSON
FREESTONE
CHEROKEE
RUSK
BULLARD
BROOKS
BOGGY CRK
PALESTINE
OAKWOOD
JACKSONVILLE
TROUPE
LLOYD - Tomme
SINCLAIR Martin
WALTON - Bond
GIANT OIL CO-Pierce
MCDONALD BROS - Norton
SINCLAIR - McRae
GRIFFITH - Lowe
HIMBROUGH - Weatherby
LEONARD - Sanger
NICHOLS - Kennedy
MAGNOLIA - Summers
TEXAS Co - Shultz
PALMETTO O.Co - Sacul
BANNER - Lacey
SEQUOIA - Boyd
HELEN CLARE
Perkins
SCHUSTER GALLAGHER
Funderburk
KIRBY PET Co - Sessions
DIANDER ET AL Diander
MICHIGAN TEX Davey
McCONNELL - Watson
COLONY - Turner
SUN - Bowers & Maiers
BOSTON-FINCASTLE - Terrell
PINE GROVE O.Co
CRANFILL-REYNOLDS - Broome
ARCADIA - SHELL - Dean
BILLINGS - Monroe
BEAUCHAMP
PANHANDLE & DICKEY - Wyland
FOSTER - Richardson
UNION PET Co - Ramsey
C.F. BONN - Smith
DENMAN - Rentfro
N.W. PECK - Henderson
N.W. PECK - Lewis
McCLELLAN - Ramsey
DUKE OF DUBLIN
HUMBLE - Weinberg
HUMBLE - Mandelstam
HUMBLE - Smith
HUMBLE - Wells
HUMBLE - Coleman
HUMBLE - Earl & Ragsdale
HUMBLE - Elliot & Clark
HUMBLE - Collier
HUMBLE - Birdwell
HUMBLE - Johnson
HUMBLE - Gammill
HUMBLE - Russell
FULLER - Copeland
ROESER - Daniels
ROESER & PENDLETON - Moody
ROESER PET Co - Brooks & Auld
COSDEN - Via
COSDEN - Douglas
HUMBLE - Greenwood
MAGNOLIA
Williams
HUMBLE SUN - Navarro - Barrett
SABINE PROD Co
Ezell
HUMBLE - So Pine
TEXAS
HUMBLE - Jackson
DAVIS
SUN - Bowers & Maiers
WALTON - Shoblery
NICHOLLI - Hill
BYRD DIXIE Farms
TEXAS - IOWA
Blanton
ALTO MISCAMP
SAN AUGUSTINE
Nacogdoches
PERCILLA
AUGUSTA
FOREST
VITEX - Hayter
CHURCHWELL - Armstrong
DELL CHAPMAN
JOINER - HENSON - Long
LIPLAND - Bolton
Neches
Angelina
Durst
Nacogdoches
LUFKIN

PANOLA
SHELBY
DESOTO
SABINE
NACOGDOCHES
WILCOX
CARRIZO
Fault
HOLLY
SPIDER
DOLET HILLS
NABORTON
BULL BAYOU
BENSON
PICKERING
SHELBYVILLE
PLEASANT HILL
OIL-GAS-3280 (ARB. WASHITA)
ZWOLLE
BLUE LAKE
CHIRENO
GENEVA
R16W
R15W
R14W
R13W
R12W
R11W
R10W
T13N
T12N
T11N
T10N
T9N
T8N
T7N
T6N
T5N
T4N


DESOTO
RED RIVER
NATCHITOCHES
SABINE
ELBY
R16W
R15W
R14W
R13W
12W
R11W
R10W
R9W
R8W
R7W
R6W
T14N
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T7N
T6N
HOLLY
CRICHTON
NABORTON
BULL BAYOU
DOLET HILLS
SPIDER
BENSON
PICKERING
SHELBYVILLE
PLEASANT HILL
ZWOLLE
BLUE LAKE
MANSFIELD
NATCHITOCHES
LOGANSPORT
KEATCHIE
GLOSTER
KINGSTON
GRAND CANE
LOGANSTREET
TEEL
LENOIR
HUNTER
OXFORD
CONVERSE
MITCHELL
SARDIS
NOBLE
BELMONT
ROBELINE
VICTORIA
HAGEWOOD
MANY
FISHER
FLORIEN
NEGREET
FLORA
CYPRESS
MONTROSE
AGERTUM
ASHLAND
SALINE
CHESTNUT
PROTHO
SALT SRRINGS
CLEAR LK
BLACK LK.
SPANISH LAKE
SALINE LK.
PATROON
HAMILTON
SEXTON
GENEVA
MILAM
ISLA
LAKE END
AJAX
VOWELLS MILL
FT. JESUP
GAS-800 NACATOCH "LITTLE OIL 2700 (TOKIO)
OIL 2600-2700 (OIL SD. CALLED TOKIO) BUT MAY BE OF WOODBINE AGE. AT BASE OF UPPER CRETACEOUS OR POSSIBLY LOWER CRETACEOUS
GAS FEW WELLS 3050 (UPPER-LOWER CRETACEOUS)
GAS-OIL FEW WELLS 3100 (UPPER-LOWER CRETACEOUS-TOKIO)
OIL-GAS 3280 (PROB. WASHITA)
OIL-GAS 3240-3260 (WASHITA)
OIL (3780) (35D) (NACATOCH)? 2650'-3000' (PROBABLY OZAN)
OIL 40144 GR. 2300-2700 (ZWOLLE MARL ABOVE ANNONA CHALK)
GAS-TEL 2850 (SANDS VOLCANIC ASH FEW FT. ABOVE BAS. UPPER CRET. PROB. WOODBINE BUT CALLED TOKIO CORRESPONDS TO OIL-GAS SD. BULL BAYOU)
TUBBS-Hines 2730'
FISHER 3038'
THORN-Burford 3020'
SNELL & DOWLING 2628'
2225 DOWNEY ET AL
CRAIZE & VINTZ-Riggs 3315'
BENEDUM-TREES
MUSLOW O. Co-Westdale Ld. Co. 2600'
GODFREY CABOT-Westdale Farming Co.
G.R.Co. 2700' Kramholtz
2600 G.R. Co-Sample
3000 TEX. Marston
2732 S.O.Co.-R.R.Ld.& P.Co.
2636 MARSTON
GULF R.CO. 2601'
AMERADA-Long Bell
NEFF-Dowling 3180
ROY-Rogers 3045'
CLARK-Plath 3003
CLARK-Tidwell
NEFF-Ramsey
PILGRIM OIL Co. 5063' Ramsey
MEEK-Wagner
6149 DIXIE-Jenkins
BECKNER 1350'
EVANS Sutherland
GULF-Bodcaw 2219
OHIO-Thomas 2460'
OHIO 3360'
PACE-Clarkson 2906
EYLERS 2750'
LUCKY STRIKE 3010'
OLDER-Powell
BENEDUM-TREES 3745
HARRIS TALLEY
COOPER
NICHOLSON-Creek 2820
H.S. JACKSON-Dunham 2986'
OHIO-Cody 3001'
ARK. L. P&L.
WALTERS-Gay
RELIANCE 3018
BENEDUM-T. 3000
GULF 3684'
CLARK & MELAT 3250
HELM-JARMAN-Joyner 3018'
BENSON-Harris 3650
MOFFETT-Boatright
SEBASTIAN 3045
R.D. CO. Logan
J.N. BRADLEY-Ashbury
WE WIN O. Co-Ashbury
SOUTHERN PET Co. Ashbury
GULF-Caraway
GULF-Pickering 3560'
ARK. LA. P.L. 3905'
TEXAS 4304
PLYMOUTH-Logan 5063
FRAZIER-Harris 3290
BORDEN-Logan 3814
ROBINSON-Tamlin 3322'
BRIDGES-Cook 3250'
TATE-Cook 3296
BRIDGES-Mc Williams
SEBASTIAN ET AL.
SLOAN-Windham
TEXAS-Pickering 4123'
H.H. GRACEY-Morrison
TEXAS CO.
MAGNOLIA
CENTER O. CO.
FLATFORK
NATIONAL-Adams
T.M. TUCKER ET AL. Brown
GLIDDEN-Davis
EISENBACH ET AL
PETTY
BIDGWAY Polley
REDDICK 3310
COATES-Collins
SABINE-ROYALTIES 2654'
EYLERS
TARVER-Long Bell 3503'
TARVER 3418'
DURHAM 2722
Mc DANIELS
SABINE OEG 2603
TEX-Largent 2800'
FRANK-Dew 2534
JESUP 3250'
DAVID-Smith
GRAY 3063
TARVER 3629
WARNER-QUINLIN 3000'
AUTREY 2460'
ESCO 2600'
GAY-Vicks 2552'
R.L. GAY ET. AL. (EMLET ET. AL.) Mansfield Hard. Lbr. Co.
LE-GRANDE
ELMET
Bowman-Hicks
PELICAN 2700
PACKARD-Davis 2882'
MELAT 2550
LOHMAN-Hubley 2558'
PELICAN 2935
DAVIDSON ET.AL. 2031' L.L.L.Co.
GULF CO. 2014
MAG.-Bisque 4014'
DEERING ET. AL.
DEERING-Harris 4049'
GAS SEEP
BENEDUM-TREES Norta Mills
LORING 4792
TOTECO 4387
TELECO 4077
PARAMOUNT-Woolums 2782
MAGNOLIA 3298
L.L.L.Co. 2100'
FRITZ CO. 2635
WILSON-Garrett 2609
MAG-Lucius 2480'
CUNNINGHAM & SEBASTIAN R.D. Dennis 3544'
PALMER HUGES ET. AL. 3010' Johnson
CARISE O. CO. Tovelow
LAWSON & FARRIS Clark & Morris 2853'
GREER L.L.L.Co. 2831'
HUMBLE
J.D. Collett-Crawford
LORING OIL Co-Mc Cann
LORING OIL Co-Pickering
R. RIDGEWAY-Parker
GULF 3005
HART-Kyle

DATA COMPILED BY
JACK LOGAN — STAFF REPRESENTATIVE
THE OIL WEEKLY
HOUSTON, TEXAS

BASE MAP & DRAFTING
BY GEO. M. DOUGHERTY

Map

The region show
controlling produc

Supplementing
proven fields and s

The OIL WEEKLY, HOUSTON, TEXAS.... *Special Supplement to Issue of July 31, 1931*

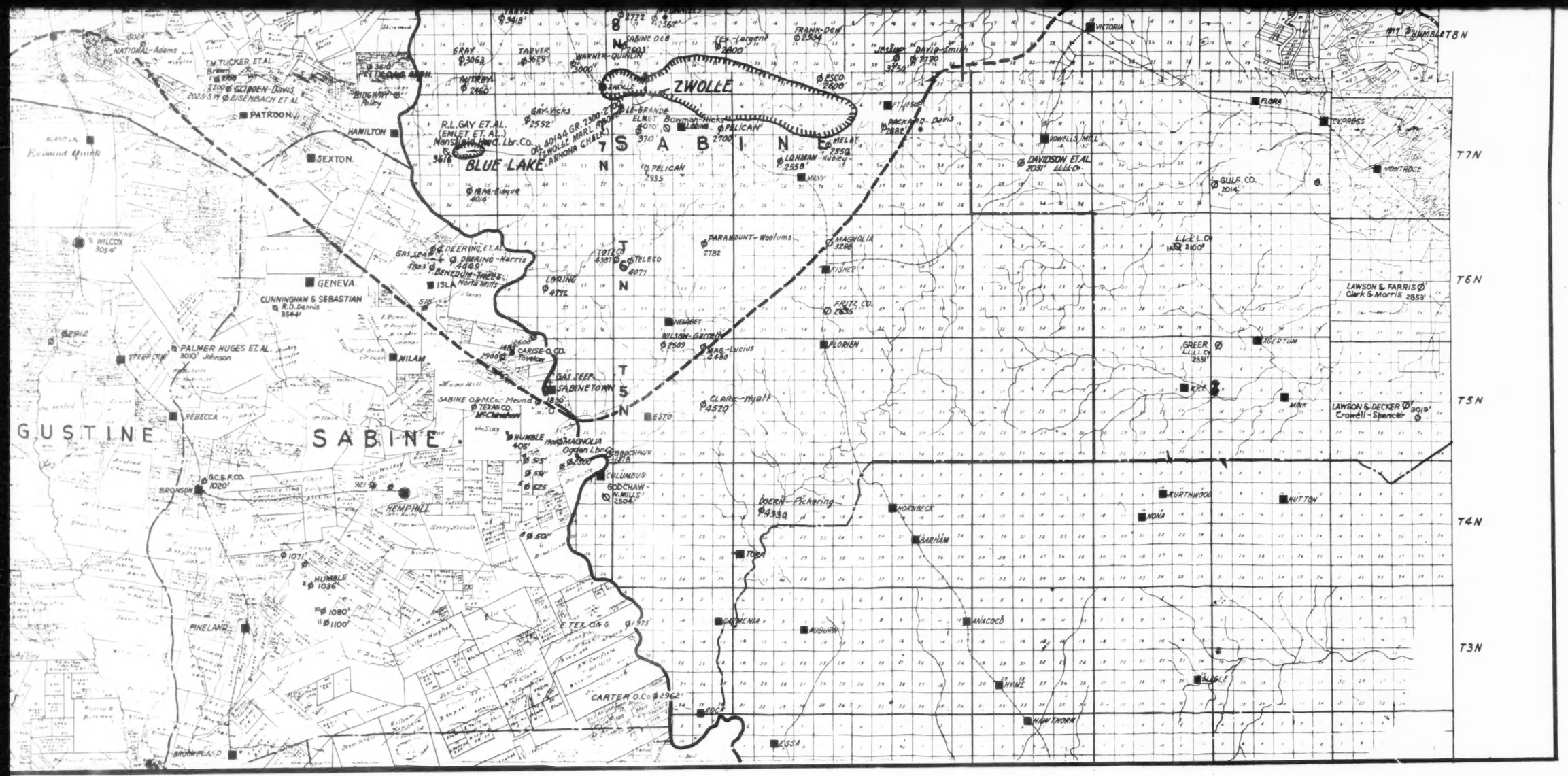
▼

Map Showing Oil and Gas Fields, Salt Domes, Structures, and Wildcat Tests in Northeastern Texas and Northwestern Louisiana

▼

The region shown comprises the East Texas Basin on the west, and the Sabine uplift on the east, the two major features controlling production in the large East Texas Field.

Supplementing data on the map, the pages of this issue of The Oil Weekly include additional detailed information on proven fields and salt domes and on wildcats completed during the past several years or now drilling.



LEGEND

OIL FIELDS
GAS FIELDS
SALT DOMES
OIL WELLS
GAS WELLS
DRY HOLES
DRILLING WELLS

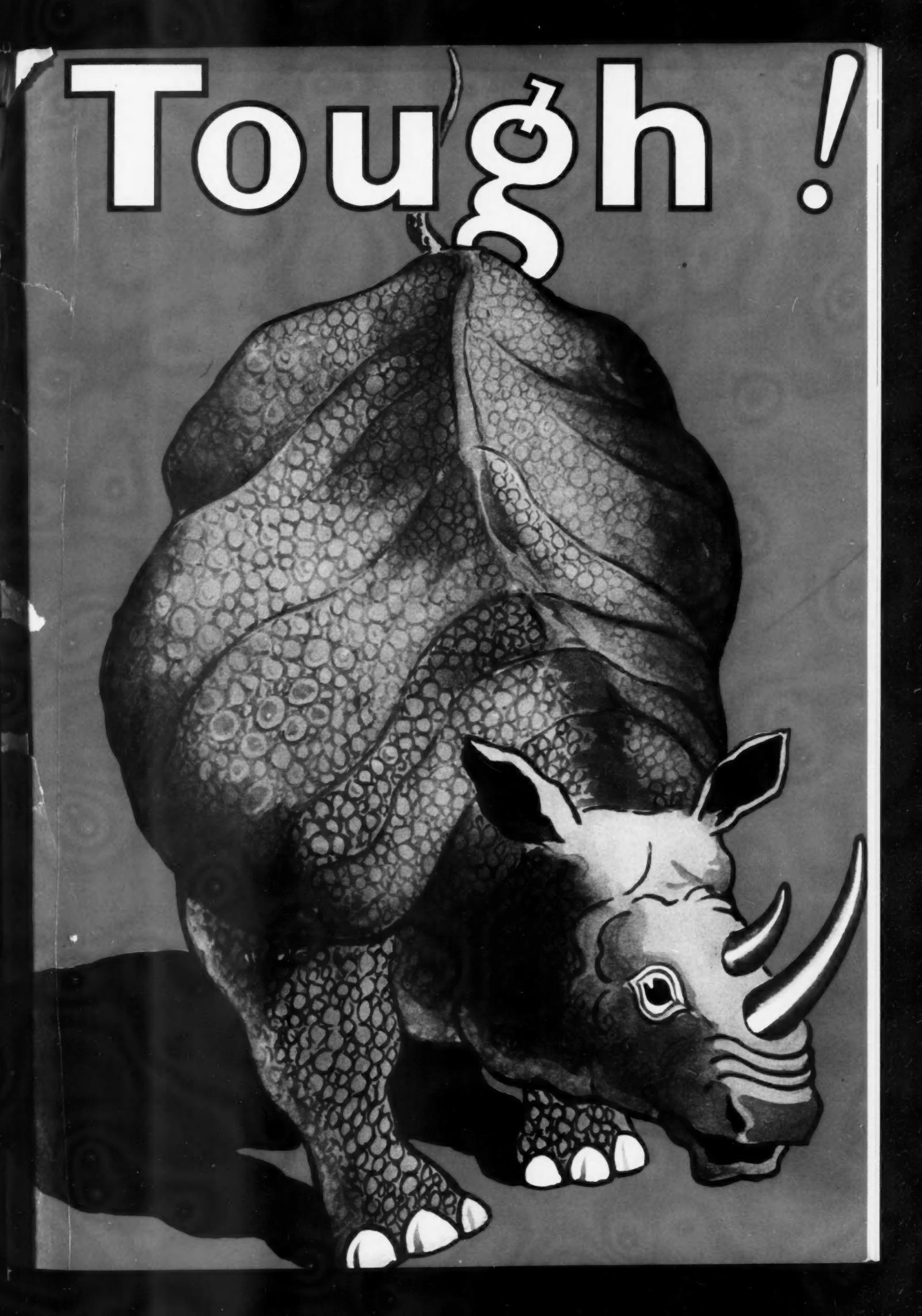
SCALE IN MILES

0 1 2 3 4 5 10 15

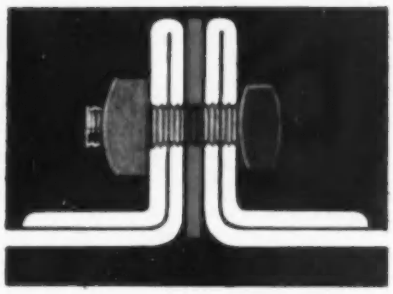
...Tests

...e two major features

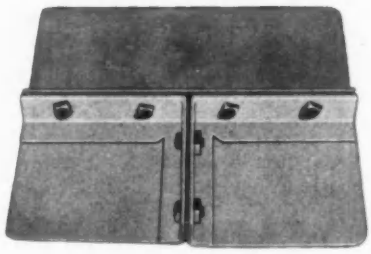
...iled information on


Tough !

THICK SKINNED!



THE RHINOCEROS is, next to the Elephant and Hippopotamus, the largest animal—an adult weighing from two to three tons. This animal has a thick skin hanging in such definite folds that the huge beast looks as though encased in armor plate.



The B. S. & B. Vapor Pressure Tanks are likewise "thick skinned" and as "tough as a rhino." The shell is made of copper-bearing steel, an alloy produced by the addition of .25% copper to well made steel. This special copper-bearing steel retards corrosion, is rust resisting, ductile, and durable—has extra malleability and tensile strength, and its superiority over other metals has been proved by unbiased tests made by American Society for Testing Materials.

In addition to this copper-bearing steel, these tanks are made "tougher" by the flange type construction. Study the drawing and photograph. The staves of these tanks are so made that when the various sections are put together, there are four thicknesses of metal instead of two, in addition to the special B. S. & B. composition packing to insure a positive joint which withstands the vapor pressure developed in the operation of the tank, and which helps to make these tanks more than gas tight—*vapor pressure tight!*

B.S.&B. Perfection Vapor Pressure TANKS

Other factors that make these tanks "tough" and add to their great strength ("trifles that make PERFECTION") include the bolts that are specially heat treated, and similar to 1020 S. A. E. Bolts used in the manufacture of high-powered motor cars. These bolts have 120,000 lbs. tensile strength to the square inch and are equipped with a chamfered head and a fillet beneath which insures a good grip.

Due to the flange type construction the bolts are all on the outside of the shell and there are no holes through the tank walls.

The angle iron tie rods, as well as the inside ladder, the angles in the pie-shaped bottom and sloping segmental deck, the heavy gussets, the arrangement of the seams of the staves, with a network of heavy reinforcing angles alternating horizontally and vertically are all other factors of strength.

Each tank is equipped with the B. S. & B. Thief Hole Pressure Vacuum Valve which operates automatically at 16 ounces pressure or 2 ounces vacuum, protecting the tanks from bulging or collapsing and insuring the crude from loss by evaporation.

We also manufacture A. P. I. Tanks. B. S. & B. A. P. I. Bolted Steel Tanks conform to A. P. I. dimensional standards, and to the exacting standards of B. S. & B. manufacture, and carry the official A. P. I. monogram.

WOOD TANKS

For use in the fields of Southwest Texas and the Panhandle where hydrogen sulphide gas fumes corrode all metals, the B. S. & B. Vapor Pressure Tanks are built of redwood with inside metal parts insulated with wood. These tanks defy corrosion.

We also manufacture other wood tanks of redwood or cypress.

"Service on the Dot
Service on the Spot"

We would like to present facts, figures and definite proof. You will be interested in our story. Please address Dept. X-18.

PRODUCTS B S&B SERVICE

Black Sivalls & Bryson INC.
BARTLESVILLE - OKLAHOMA

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Markets • Production • Crude Prices

H. J. STRUTH, *Staff Economist, Houston, Texas*

East Texas Production Above 500,000 Barrels

East Texas production rose 96,100 barrels a day last week, putting the daily average for that area up to 504,900 barrels, a new high record. However, it is believed that this figure does not fully reflect the extent of production as information from several sources in the field indicate a probable daily output of more than 600,000 barrels. At any rate, the rate at which production rose in East Texas last week substantiates the belief that the posting of higher prices in other fields is but an incentive for East Texas operators to pursue a wide-open policy and attract buyers from all parts of the world. While the severe decline in crude prices of July 8 proved ruinous to thousands of pumping wells and their operators, it is obvious that the advance posted on July 24 can accomplish little to relieve the distressing situation that confronts the industry. As it is, the new, higher prices for Mid-Continent oil react to the advantage of East Texas, since prices there continue to encourage intensive competition with oil produced elsewhere.

As long as East Texas oil can be sold at prices considerably below the posted price of Mid-Continent oil there is every reason to believe that there is a market for every barrel of East Texas oil produced. In the meanwhile, operators in other sections of the Mid-Continent area will find their outlets becoming narrower and may not find themselves any better off than if the low prices July 8 had been maintained for a while longer. If the situation has actually become one where only the fittest will survive, it is apparent that increasing prices in every field outside of East Texas will prove to be a detriment rather than a benefit. Under the circumstances there is nothing else to expect but a ragged market structure wherein oil must be sold for what it will bring and posted prices literally mean nothing. As matters stand now, the competition from East Texas oil must either be met with low prices, or thousands of operators must determine to stand by and await the outcome of a wide-open flow of East Texas oil that will hasten its peak production and subsequent decline. It looks now as if the upturn in posted prices will prove to be nothing more than "soothing syrup" that will probably be found to be the covering of a bitter dose of medicine.

Oklahoma operators have apparently discovered a powerful weapon in the form of a complete shut-down in protest of lowers prices. Their opinion that oil is worth at least a dollar a barrel is perhaps the most constructive force brought to bear upon the economic situation. Undoubtedly, if a majority of operators join such a movement, the price structure would readily become adjusted to a level where everyone could operate at a fair margin of profit instead of a total loss. While such a movement, if widely adopted, would temporarily place East Texas in a dominant market position, it is seen that the forcing of well limits there would quickly dissipate the supply of oil and cause a scramble for new sources of supply at higher prices than those which prevailed prior to the depression. As few can make a profit from crude which must be sold for less than a dollar a barrel, it appears logical for operators to join the movement initiated in Oklahoma and make oil so scarce that purchasers will gladly pay a dollar or more for their requirements. Regardless of the potentialities of East Texas, this area cannot furnish the needs of the industry and it is believed that only a short time would be required to bring about a price adjustment that would restore the industry's equilibrium. East Texas is rapidly heading for a fall and present and prospective production is hastening the dissipation of pressures and forcing the encroachment of salt water. Whatever happens in East Texas in the near future, it is obvious that prices throughout the Mid-Continent area will be governed almost entirely by the East Texas market, plus pipeage. With 14 East Texas pipe lines competing for oil, it is not improbable that higher prices will be seen. This can only mean continued increases in production for some time to come.

The sharp increase in East Texas production of last week served to temper the effect of the general decline of the preceding week. As a result, daily average crude production rose to 2,486,950 barrels, an increase over the preceding week of 42,150 barrels. Texas is now credited with a daily average production of 1,086,900 barrels. Oklahoma production was off 38,850 barrels last week and is expected to recede to a still lower level this week. The excess production of the United States is now 197,450 barrels, while Texas is charged with producing an excess of 289,900 barrels a day.

CRUDE PRICE CHANGES

Effective July 22, Magnolia Petroleum Company posted a flat price of 40 cents a barrel for North Texas and Oklahoma crudes. This was an increase of five cents above the flat prices initiated prior to the reduction posted by all other companies on July 8. Effective July 23, The Texas Company posted flat prices of 35 and 40 cents a barrel for crude purchased in North and Central Texas. Oil of 36 gravity and below was posted at 35 cents and above 36 gravity 40 cents. Increase of 20 cents a barrel was also posted by this company for crude produced in West Texas, Panhandle and New Mexico.

Effective July 24, Humble Oil & Refining Company posted increases of from 9 cents to 18 cents a barrel for all grades of Texas and New Mexico crude. New prices for North Texas were placed on a flat-price basis, conforming to the new schedule posted July 23 by The Texas Company. Gulf Coast prices were also advanced nine cents a barrel, making the low price 40 cents and the top price 51 cents. All major purchasing companies met the new scale of prices and eliminated the former gravity differentials.

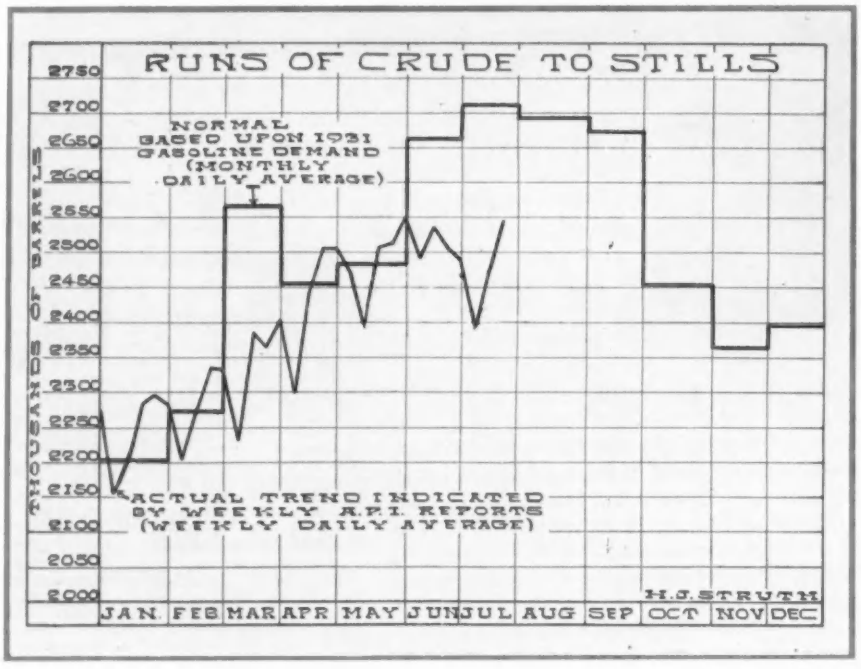
Effective July 24, Standard Oil Company of Louisiana increased all crude prices in Arkansas and Louisiana from 10 cents to 20 cents a barrel. The gravity scale was retained in Louisiana; oil of 29 gravity and below being posted at 30 cents a barrel, with a differential of one cent for each degree to 40 and above which is posted at 42 cents. Smackover crude was boosted 15 cents a barrel and Urania oil 10 cents a barrel.

Effective July 24, Imperial Oil Company increased Canadian oil prices 15 cents a barrel, making Petrolia crude $1.75 and Oil Springs $1.82.

Effective July 24, Ohio Oil Company posted an increase of 15 cents a barrel for all grades of Central West crude.

Effective July 25, Ohio Oil Company posted increases of from 10 cents to 20 cents a barrel for all grades of Rocky Mountain crude.

MARKET SECTION



Mid-Continent Prices Up But Production Declines

Mid-Continent crude oil prices have snapped back violently from the low figure posted July 8.

Monday, July 27, Sinclair Refining Company posted a flat price of 50 cents a barrel for Oklahoma and Kansas oils. This concern led in the reductions made July 8 and had not met the varying quotations that went out last week. Its move Monday was a further increase for Mid-Continent price, which previously had reached only 42 cents for oil of 40 gravity and higher.

After a flat price had been posted of 40 cents per barrel July 22, the general upward movement of prices came July 24 when both Carter Oil Company and Stanolind Crude Oil Purchasing Company posted full gravity schedules for Oklahoma and Kansas. These schedules are identical, except that Carter Oil Company includes oil below 28 gravity, while Stanolind Crude Oil Purchasing Company begins with 29 gravity.

These schedules were promptly met by other purchasers. Pure Oil Company, Empire Oil & Refining Company, Gypsy Oil Company and Mid-Continent Petroleum Corporation met the Carter schedule in general. Vickers Petroleum Com-

Crude Runs to Stills, Gasoline Stocks and Gas and Fuel Oil Stocks

Week Ending July 18, 1931

(Figures in barrels of 42 gallons)

District—	Potential Capacity (Daily) Total	Potential Capacity (Daily) Reporting	Per Cent	Crude Runs to Stills Total	Daily Average	Per Cent Operated	Gasoline Stocks (see note below)	Gas & Fuel Oil Stocks
East Coast	633,700	633,700	100.0	3,202,000	457,400	72.2	6,394,000	9,628,000
Appalachian	149,600	137,400	91.8	725,000	103,600	75.4	1,367,000	1,289,000
Indiana, Illinois, Kentucky	436,300	421,500	96.6	2,180,000	311,400	73.9	5,667,000	3,824,000
Oklahoma, Kansas, Missouri	485,700	435,200	89.6	2,138,000	305,400	70.2	2,717,000	5,132,000
Texas	838,200	765,400	91.3	3,937,000	562,400	73.5	7,084,000	10,848,000
Louisiana-Arkansas	233,100	230,500	98.9	1,338,000	191,200	83.0	1,030,000	2,892,000
Rocky Mountain	159,400	142,300	89.3	431,000	61,600	43.3	1,704,000	840,000
California	912,500	880,100	96.5	3,360,000	480,000	54.5	11,414,000	98,503,000
Total Week July 18	3,848,500	3,646,100	94.7	17,311,000	2,473,000	67.8	37,377,000	132,956,000
Total Week July 11	3,848,500	3,646,100	94.7	16,828,000	2,404,000	65.9	38,342,000	132,636,000
Total July 19, 1930	3,686,400	3,528,400	95.7	17,122,000	2,446,000	69.3	45,937,000	139,113,000
The Texas and Louisiana Gulf Coastal figures shown below are included above in the totals of their respective districts.								
Texas Gulf Coast	532,500	531,500	99.8	2,905,000	415,000	78.1	5,962,000	7,660,000
Louisiana Gulf Coast	147,500	147,500	100.0	878,000	125,400	85.0	907,000	1,946,000

NOTE: In all the refining districts indicated except California, figures in this column represent gasoline stocks at refineries. In California, they represent the total inventory of finished gasoline and engine distillate held by reporting companies wherever located within Continental United States—(stocks at refineries, water terminals and all sales distributing stations, including products in transit thereto).

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HOW LAST WEEK'S DAILY AVERAGE PRODUCTION COMPARES WITH NECESSARY AND NORMAL QUOTA LIMIT

State—	Indicated Demand Third Quarter 1931	Economic Limit Third Quarter 1931	Daily Average Last Week	Daily Excess Last Week	Daily Average Since January 1	Daily Excess Since January 1†
Arkansas	63,000	60,000	40,600	—19,400	47,351	—8,649
California	525,000	487,500*	523,900	36,400	518,335	22,535
Kansas	127,000	120,000	97,400	—22,600	107,968	—5,032
Louisiana	85,000	75,000	56,000	—19,000	66,571	—7,429
Oklahoma	593,000	550,000*	482,150	—67,850	526,787	20,087
Texas	860,000	797,000*	1,086,900	289,900	840,899	129,199
Balance of U. S.	275,000	200,000	200,000	.....	207,115	—34,585
Total	2,528,000	2,349,500	2,486,950	197,450	2,315,026	116,126

*Allowable.
†Excess based on allowable to date.

pany and Skelly Oil Company posted prices corresponding with the Carter schedule in Kansas.

Continental Oil Company, Tidal Refining Company and H. F. Wilcox Oil & Gas Company met the Stanolind schedule.

In Kansas White Eagle Oil Corporation made another increase in prices July 23. These prices are still flat rates for different fields as follows:

Eastborough, Wright, Robbins, Greenwich and Caldwell, 40 cents.

Lorena, Eastman, Fox-Bush, Keighley, North Greenwood and Ritz-Canton, 39 cents.

Smock, Sluss, Leon-Weaver, Peabody and Rock, 37 cents.

Urshell, Koogler, Augusta, Ebling, 33 cents.

Celwick, 28 cents.

The White Eagle schedule was posted July 23.

These churnings in price schedules, however, failed to bring similar response in crude oil production, which showed another substantial decline for Oklahoma and Kan-

Cracked Gasoline Production

Week Ending July 18

(Barrels of 42 gallons)

District	Potential Cracking Capacity (Daily) Total	Reporting	Per Cent	Production Daily Total	Average
East Coast	261,300	236,300	90.4	607,000	86,700
Appalachian	52,300	50,100	95.8	180,000	25,700
Ind., Ill., Ky.	330,400	306,400	92.7	575,000	82,200
Okla., Kans., Mo.	237,800	219,500	92.3	421,000	60,100
Texas	450,800	436,200	96.8	855,000	122,100
Louisiana-Arkansas	112,400	112,400	100.0	223,000	31,900
Rocky Mountain	99,100	94,600	95.5	114,000	16,300
California	180,800	180,800	100.0	305,000	43,600
Total week July 18.	1,724,900	1,636,300	94.9	3,280,000	468,600
Total week July 11.	1,724,900	1,636,300	94.9	3,220,000	460,000
Total July 19, 1930.	1,589,200	1,225,300	77.1	2,549,000	364,100
The Texas and Louisiana Gulf Coastal Figures Shown Below are included above in the totals of their respective districts.					
Texas Gulf Coast	352,400	347,400	98.6	664,000	94,900
Louisiana Gulf Coast	77,000	77,000	100.0	161,000	23,000

Imports of Petroleum at Principal United States Ports

(Barrels of 42 gallons)

	Week Ended July 18		Week Ended July 11
AT ATLANTIC COAST PORTS—			
Baltimore	326,000		.....
Boston	97,000		118,000
New York	640,000	(a)	889,000
Philadelphia	387,000		40,000
Others	127,000	(a)	191,000
Total	1,577,000		1,238,000
Daily Average	225,286		176,857
AT GULF COAST PORTS—			
Galveston District	.....		.....
New Orleans & Baton Rouge	65,000		103,000
Port Arthur & Sabine District	.....	(a)	65,000
Tampa	.....		.....
Total	65,000		168,000
Daily Average	9,285		24,000
AT ALL UNITED STATES PORTS—			
Total	1,642,000		1,406,000
Daily Average	234,571		200,857
Daily Average Four Weeks Ended	218,393		199,429
Distribution of Total Imports is as follows:			
Crude	1,083,000	(a)	630,000
Gasoline	294,000	(a)	175,000
Fuel Oil	265,000	(a)	601,000
Total	1,642,000		1,406,000

(a)—Revised.

California Oil Receipts at Atlantic and Gulf Coast Ports

(Barrels of 42 gallons)

	Week Ended July 18		Week Ended July 11
AT ATLANTIC COAST PORTS—			
Baltimore	85,000		60,000
Boston	.....		.....
New York	156,000		165,000
Philadelphia	.....		226,000
Others	72,000	(a)	117,000
Total	313,000		568,000
Daily Average	44,714		81,143
AT GULF COAST PORTS—			
Total	.....		.....
Daily Average	.....		.....
AT ATLANTIC AND GULF COAST PORTS—			
Total	313,000		568,000
Daily Average	44,714		81,143
Daily Average Four Weeks Ended	49,464		44,464
Distribution of total California oil receipts is as follows:			
AT ATLANTIC COAST PORTS—			
Gasoline	215,000	(a)	568,000
Fuel Oil	98,000		.....
Total	313,000		568,000

(a)—Revised.

MARKET SECTION

United States Daily Average Production

1930	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
May	663,300	131,000	662,350	203,900	39,900	53,800	137,150	82,500	623,700	2,597,700	80,529,600
June	665,550	133,600	668,300	210,500	40,300	56,900	135,750	84,600	598,000	2,593,500	77,806,900
July	594,750	121,600	652,350	209,400	40,550	55,400	137,200	98,350	610,450	2,520,050	78,121,200
August	558,850	115,650	646,400	206,600	41,500	55,100	128,550	106,000	611,250	2,470,900	76,597,600
September	558,900	116,550	606,550	200,750	40,150	53,550	121,400	110,650	604,900	2,413,400	72,402,205
October	542,100	114,850	609,500	194,850	41,500	52,800	121,750	104,000	590,800	2,372,150	73,536,350
November	491,550	111,400	579,350	190,100	44,050	52,000	116,400	101,950	601,200	2,288,000	68,639,150
December	459,300	105,550	533,400	189,300	43,000	51,100	112,200	100,500	587,450	2,181,800	67,636,500
1931											
January	452,000	106,350	511,050	188,850	41,100	50,700	110,300	96,700	535,700	2,092,750	64,874,450
February	473,750	114,450	523,700	185,600	43,950	49,950	109,800	100,100	527,300	2,128,600	59,600,450
March	531,900	110,550	585,000	177,950	40,250	47,550	108,800	95,400	528,100	2,225,500	68,990,850
April	543,650	109,250	723,050	185,850	39,050	47,000	111,500	95,500	527,350	3,382,200	71,465,750
May	551,950	107,400	767,200	185,950	39,200	46,650	111,250	97,500	534,150	2,451,250	75,975,950
June	556,850	103,150	828,250	170,100	36,500	44,900	108,950	97,950	520,300	2,466,950	74,009,750
July 4	591,600	103,150	830,500	163,250	35,200	43,900	108,650	99,650	506,600	2,482,500	17,377,500
July 11	632,450	101,450	850,650	159,800	33,750	43,500	107,750	92,300	523,000	2,544,650	17,812,550
July 18	521,000	99,500	864,500	158,800	33,950	41,050	101,500	87,400	525,000	2,446,800	17,127,500
July 25	482,150	97,400	952,950	156,500	33,450	40,600	105,100	94,900	523,900	2,486,950	17,408,650
Increase	.....	.....	88,450	.....	.....	.....	3,600	7,500	.....	42,150	281,150
Decrease	38,850	2,100	.....	2,300	500	450	....	....	1,100	.....	.....

Last Week's Daily Average Production by Districts

TEXAS	July 25	July 18
Panhandle District	55,600	57,800
North Texas	58,100	58,850
West Central Texas	25,600	26,750
West Texas	199,650	201,550
East Central Texas	52,350	53,500
East Texas	504,900	408,800
Southwest Texas	56,750	57,750
Texas Gulf Coast	133,950	135,900
Total Texas	1,086,900	1,000,400
OKLAHOMA	482,150	521,000
CALIFORNIA	523,900	525,000
KANSAS	97,400	99,500

LOUISIANA	July 25	July 18
North Louisiana	33,450	33,950
Louisiana Gulf Coast	22,550	22,900
Total Louisiana	56,000	56,850
ARKANSAS	40,600	41,050
MOUNTAIN STATES		
Wyoming	40,600	41,000
New Mexico	42,150	41,350
Colorado	4,200	3,650
Montana	7,950	1,400
Total Mountain States	94,900	87,400
EASTERN STATES	105,100	101,200
TOTAL UNITED STATES	2,486,950	2,446,800

Summarized Review of Field Results

State—	Completions This week	Completions Last week	Oil Wells This week	Oil Wells Last week	Gas Wells This week	Gas Wells Last week	Failures This week	Failures Last week	Initial Prod. This week	Initial Prod. Last week
Arkansas	0	1	0	1	0	0	0	0	0	490
California	6	6	4	4	0	0	2	2	5,350	8,300
Illinois	0	0	0	0	0	0	0	0	0	0
Indiana	0	10	0	3	0	4	0	3	0	45
Kansas	10	9	6	5	0	4	4	0	6,595	3,100
Kentucky	7	1	3	1	3	0	1	0	287	300
Louisiana	3	4	2	1	0	1	1	2	557	500
Michigan	0	0	0	0	0	0	0	0	0	0
Mississippi	2	1	0	0	0	0	2	1	0	0
New York	1	5	1	3	0	1	0	1	3	8
Ohio	21	16	5	1	12	10	4	5	27	50
Oklahoma	14	12	9	2	1	4	4	6	122,535	29,163
Pennsylvania	33	35	11	13	15	13	7	9	30	43
Texas	135	91	103	64	6	2	26	25	751,690	387,264
West Virginia	5	11	0	4	4	7	1	0	0	12
Total	237	202	144	102	41	46	52	54	887,074	429,275
Increase this week	35		42		..		..		457,799	
Decrease this week	..		..		5		3		.....	.....

Comparison of Permits Granted for New Wells

State—	Week Ending July 25	Previous week	This week 1930	Total this month	This month 1930	Total this year	Total this date last year	1930 year total
Arkansas	0	0	0	0	2	23	60	108
California	2	4	21	11	53	235	471	922
Louisiana	2	3	19	15	57	194	628	948
Kansas	4	2	31	28	42	275	627	944
Oklahoma	9	8	45	40	232	547	1,980	2,830
Texas	144	98	120	427	436	3,379	4,719	7,052
Total	161	115	236	521	822	4,655	8,485	12,804

MARKET SECTION

sas for the week ending July 25. Oklahoma production for that week was an average of 481,620 barrels daily, against 520,320 for the previous week. Kansas output was down to a daily average of 97,120 barrels compared with 99,275 for the previous week.

At Oklahoma City where the strike of producers has been most effective, production went down to an average of 111,545. For the previous week Oklahoma City produced 144,075 barrels.

The total drop in Oklahoma output was 38,700 barrels per day of which Oklahoma City accounted for 32,530 barrels, leaving 6170 barrels reduction for other fields of this state.

Had Sinclair Oil & Gas Company not elected to take its July allowable in rapid order the Oklahoma City pool would have shown more drastic reduction. This company produced its wells until the middle of last week and then closed down. As the Oklahoma City field now stands it has but few wells producing and will show another marked decline for the current week.

A phase of the situation at Oklahoma City that is drawing some attention is the allowed production that is running to the credit of leases while the pool is under voluntary restriction. By the end of July this field will be about 3,000,000 barrels behind the output permissible under the order of the Oklahoma Corporation Commission. It is evidently the opinion of producers that they will be allowed to make up this back production whenever the field is put back in the class of full output under proration. Should the shut-down continue for several more weeks the total of "under production" will run into an outstanding figure.

This question of making up "under production" may have to be taken before the corporation commission for a hearing before it is settled.

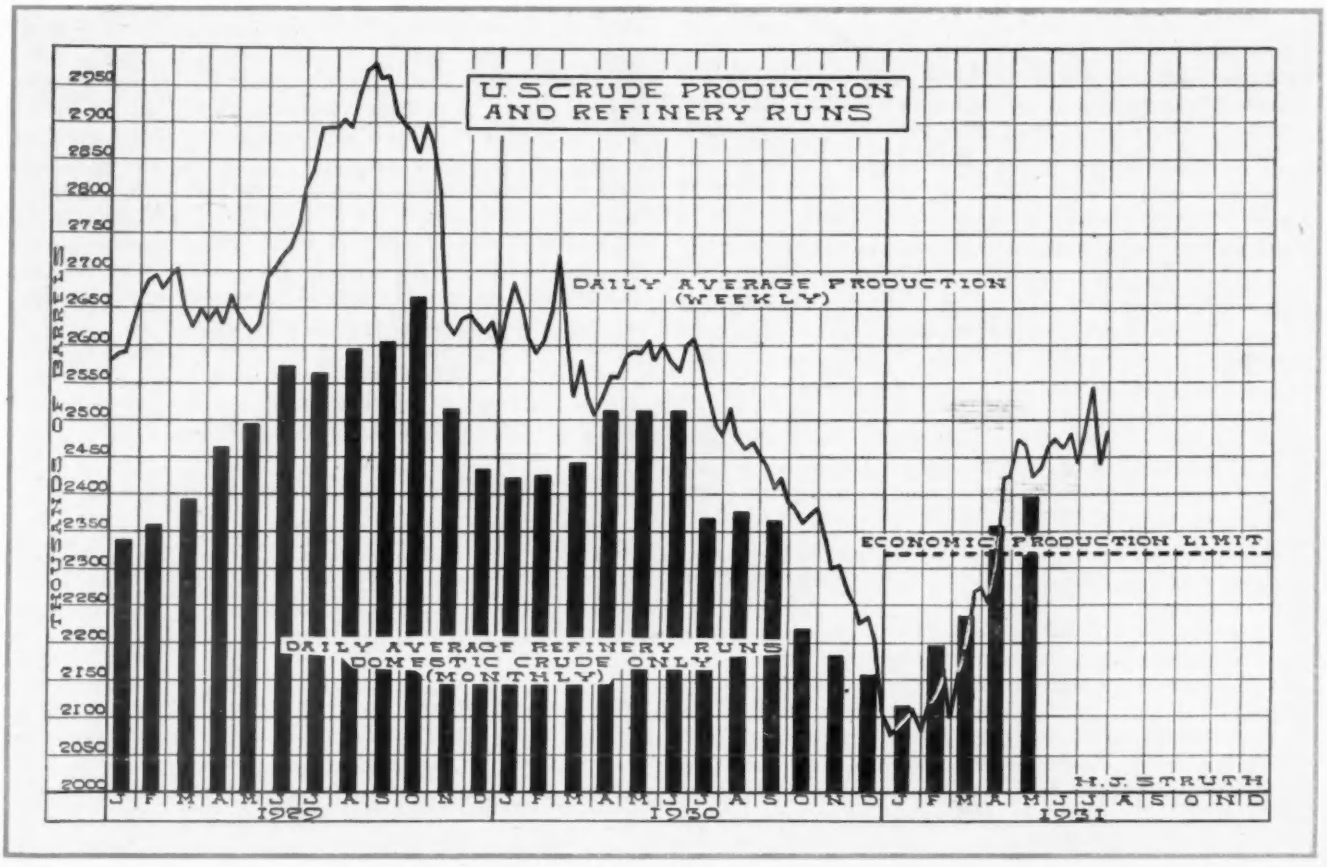
The threat of a complete shut-down of all Oklahoma fields now under proration has come out of the Oklahoma state house repeatedly in the past week. Governor William H. Murray has been talking of the move the larger companies might make should he issue such an order. While there is not so much talk of the move now, it is known that the petroleum industry of Oklahoma considered the move imminent over a period.

Kettleman Agreement Helps California's Crude Market

Agreement to hold Kettleman Hills to 60,000 barrels has strengthened the crude market in California, but the decline of certain exports has worked in the opposite direction and the net change has been small. The potential production of every field in the state, except Kettleman Hills, is showing a steady decline. This drop will naturally result in a stronger technical position during future months. Absence of field work is already being felt.

Such fields as Long Beach, Santa Fe Springs and Ventura are far removed from the trouble zone. Long Beach is producing only about 74,000 barrels, as against nearly twice as much two years ago. Santa Fe Springs and Ventura Avenue are holding to a steady decline. Kettleman Hills is the only threat in the state at this time.

Much of the gasoline and fuel oil formerly supplied by California is now being supplied by other districts, the Atlantic seaboard particularly having switched for various



MARKET SECTION

reasons. Refinery operations as well as production, in California, show the effects of this shrinkage. Stocks are being reduced considerably, but not at the rate to be expected with such a low output of crude.

Cut-price gasoline seems to be worrying the principal marketers, civic leaders, and others. An advertising campaign is being waged against the price cutter, and the public is urged not to buy from him, but he seems to be "getting by" some way. While the people are in a saving mood, it will be difficult to stop price-cutting in petroleum products.

Agencies and co-operative movements of various kinds are under way. Some are good and some are not so good, an analysis shows.

It now looks as though California will be able to hold the present price schedule. Slightly improved Mid-Continent prices have helped much.

Slower Decline in Gasoline Stocks During Past Week

Gasoline stocks declined only 88,000 barrels last week, compared with a decline of 965,000 barrels during the preceding week. The slower rate of decline was due to a gain in refinery still runs which increased from a daily average of 2,547,000 barrels to 2,589,000 barrels. This would indicate that refiners must of necessity hold runs down in order to effect a substantial rate of withdrawal from gasoline storage. Despite the fact that stocks of gasoline are now equivalent to only about 28 days of supply, the general state of the gasoline market dictates the necessity for rigid control of refinery operations.

The report of supply and demand, issued by the American Petroleum Institute, which appears in this issue of THE OIL WEEKLY, urges caution in connection with refinery operations, pointing out that any over-production of gasoline will result in an unwieldy supply of that product at the close of this year. Stocks at refineries at the present time amount to about 37,960,000 barrels, based upon American Petroleum Institute reported gasoline stocks and converting their figures to a Bureau of Mines basis. The esimate of supply and demand of the A. P. I. contemplates that the normal stock of gasoline on hand October 1 should not exceed 27,184,000 barrels, or more than 10,000,000 barrels less than the quantity in storage at present. A look ahead indicates that domestic gasoline consumption will continue above expectations throughout August and September, which means, of course, that the industry must reduce stocks another 10,000,000 barrels during these two months, after which stocks will necessarily begin to increase.

The results attained thus far this year are most encouraging and reflect an unusual degree of control over refinery runs. By keeping runs below the quantity required to supply current requirements, the industry has succeeded in reducing gasoline stocks about 10,000,000 barrels since March 28. If still runs are maintained at a similar level throughout August and September, there is every reason to believe that gasoline stocks will have been reduced to the normal figure projected by the American Petroleum Institute by October 1. The degree of control exercised now, during the season of peak demand, will be reflected in a vastly improved market situation next year. The goal set for gasoline stocks to be carried over into next year is 30,284,000 barrels; only 7,000,000 barrels less than is now in storage. That this goal can be realized is demonstrated by the supply and demand figures since March 28.

East Texas Facilities Could Handle 750,000 Barrels

(*Continued from page* 51*b*)

locomotives. Sinclair Refining Company is the first major company to authorize a plant, and is at work on a 5000-barrel daily capacity skimming unit on the T.&P. Railroad between Gladewater and Camps Switch. The latter will accumulate fuel oil for batch shipments by pipe line to its refineries in the Mid-Continent, or on the coast.

Steel storage facilities have been comparatively slow in making appearance in East Texas, but a change in attitude of operators and companies recently in regard to the economic value of installing tank farms has caused the total tankage completed and building to advance beyond 7,000,000 barrels in capacity. This tankage is scattered over seven counties, including the four participating in the flush production, is to be used solely for high gravity oil from East Texas.

Rusk and Gregg Counties, being the two main oil sources for the district, have 2,306,000 and 3,258,000 barrels, respectively, of steel storage completed and building. Tank farms created by major pipe line companies account for the bulk of this tankage, although Mid-Kansas Oil & Gas Company, which is dependent upon tank car shipments for transportation, has a program of 10 55,999-gallon tanks under way. The Texas Pipe Line Company is erecting eight 80,000-barrel tanks on the W. W. Wilson 80-acre site, Bennett Smith Survey, Rusk County, and also four 80,000 barrels near its main line station in Gregg County below Gladewater. Sun Pipe Line Company, East Texas division, has completed four 82,000-barrel (A.P.I.) tanks on its station site below the Joiner field. Magnolia Pipe Line Company's Gregg County main line station has five 80,000 and two 55,000-barrel tanks, while Atlantic Pipe Line Company's nearby farm has an initial program of four 55,000 and one 80,000-barrel steel tanks. Houston Oil Company erected five large tanks in the Kilgore field proper, and Woodley Petroleum Company has 227,500 barrels of storage facilities through the erection of four large tanks.

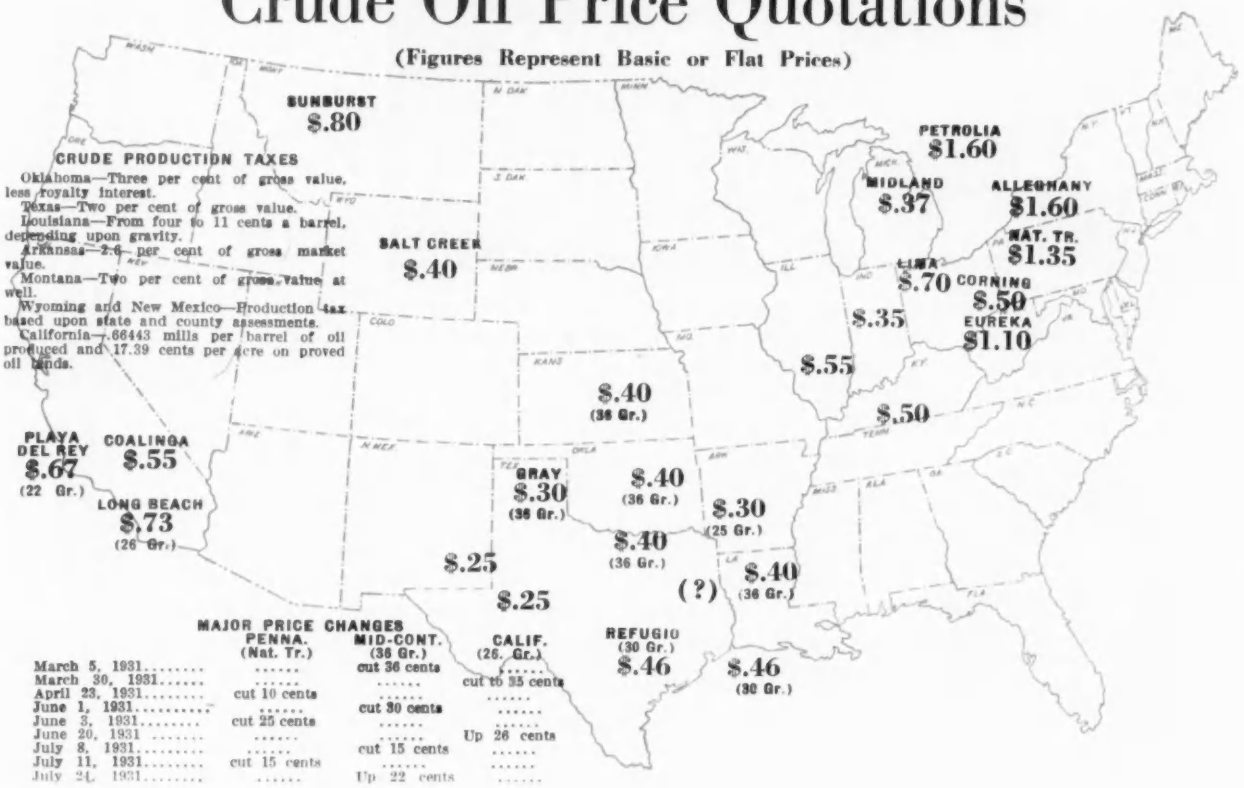
The 68 completed tanks in the seven counties offer an aggregate of 4,304,000 barrels of storage room, while there are 38 tanks under construction in these counties that will add 2,740,000 barrels of additional facilities.

East Texas Refineries Completed

Owner—	Daily Capacity	Current Operations in Bbls.	Plant Location	Railroad Connection
Arrow Refining Co.	2,500	800	Overton	I-GN
Beacon Oil & Ref. Co.	2,500	2,000	NW Henderson	I-GN
Boone Refining Co.	500	350	Arp	None
Central Refining Co.	10,000	...	Friar	I-GN
East Texas Ref. Co.	12,000	11,000	Lonview Junc't	Santa Fe
East Texas Ref Co.	6000	4,150	Friar	I-GN
Kilgore Ref. Co.	1,500	...	Kilgore	I-GN
Overton Refining Co.	3,500	2,150	Overton	I-GN
Rusk Refining Company	3,000	...	Overton	I-GN
Slack Petroleum Co.	2,500	1,500	Camps	T&P
Taylor Refining Co.	15,000	10,150	Tyler	Cotton Belt
PLANTS BUILDING				
Constantine Refining Co.	2,500	...	Overton	I-GN
Danciger O&R Co. (Bell)	10,000	...	Longview	I-GN
Sinclair Refining Co.	5,000	...	Gladewater	I-GN

Crude Oil Price Quotations

(Figures Represent Basic or Flat Prices)



CRUDE PRODUCTION TAXES

Oklahoma—Three per cent of gross value, less royalty interest.
Texas—Two per cent of gross value.
Louisiana—From four to 11 cents a barrel, depending upon gravity.
Arkansas—2.6 per cent of gross market value.
Montana—Two per cent of gross value at well.
Wyoming and New Mexico—Production tax based upon state and county assessments.
California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

MAJOR PRICE CHANGES

	PENNA. (Nat. Tr.)	MID-CONT. (36 Gr.)	CALIF. (26 Gr.)
March 5, 1931	.....	cut 30 cents	.....
March 30, 1931	.....	.....	cut to 35 cents
April 23, 1931	cut 10 cents	.....	.....
June 1, 1931	.....	cut 30 cents	.....
June 3, 1931	cut 25 cents	.....	.....
June 20, 1931	.....	.....	Up 26 cents
July 8, 1931	.....	cut 15 cents	.....
July 11, 1931	cut 15 cents	.....	.....
July 24, 1931	.....	Up 22 cents	.....

Official Postings and Differentials

(Revised to July 28, 1931)

California: (Effective June 19, 1931).

Signal Hill, Seal Beach and Alamitos Heights: 14 to 22.9 gravity 65 cents; 23 gravity, 67 cents with differential of two cents for each degree upward. Top price for Signal Hill, 30 gravity, 81 cents; top price Seal Beach and Alamitos Heights, 27 gravity, 75 cents.

Huntington Beach: 14 to 21 gravity, 65 cents; 22 gravity, 66 cents with differential of two cents for each degree upward. Top price, 27 gravity, 76 cents.

Inglewood: 14 to 19.9 gravity 65 cents; 20 gravity 66 cents with differential of two cents for each degree upward. Top price, 25 gravity 76 cents.

Playa Del Rey: 19 to 20.9 gravity 65 cents with differential of one cent for each degree upward. Top price, 25 gravity, 70 cents.

Olinda and Brea Canyon: 14 to 19.9 gravity 65 cents; 20 gravity 66 cents; 21 gravity 67 cents; 22 gravity 68 cents with differential of two cents for each degree upward. Top price, 28 gravity, 80 cents.

Coyote Hills: 14 to 22.9 gravity 65 cents; 20 gravity 66 cents; 21 gravity 67 cents with differential of two cents for each degree upward. Top price, 28 gravity, 79 cents.

Santa Fe Springs: 24 to 26.9 gravity 65 cents; 27 gravity 68 cents; 28 gravity 71 cents; 29 gravity 73 cents; 30 gravity 75 cents; 31 gravity 78 cents; 32 gravity 80 cents; 33 gravity 83 cents; 34 gravity 85 cents; 35 gravity and above 87 cents.

Whittier, La Habra and Montebello; 65 cents a barrel.

Torrance: 14 to 21.9 gravity 65 cents with differential of one cent for each degree to 25 gravity and two-cent differential for 25 gravity. Top price, 25 gravity, 70 cents.

Richfield: 14 to 20.9 gravity 65 cents; 21 gravity 66 cents with differential of two cents for each degree upward. Top price, 25 gravity, 74 cents.

Elwood: 33 gravity 79 cents; 34 gravity 81 cents with differential of three cents for each degree upward. Top price, 36 gravity, 87 cents.

Newhall, McKittrick and Kern River: 55 cents a barrel.

Midway-Sunset, Elk Hills and Buena Vista Hills: 14 to 21.9 gravity 55 cents; 22 gravity 56 cents; 23 gravity 58 cents; 24 gravity 61 cents; 25 gravity 64 cents; 26 gravity 66 cents; 27 gravity 68 cents; 28 gravity 71 cents; 29 gravity 74 cents; 30 gravity 76 cents.

Lost Hills: 14 to 20.9 gravity 55 cents; 21 gravity 57 cents; 22 gravity 59 cents; 23 gravity 60 cents; 24 gravity 62 cents; 25 gravity 64 cents; 26 gravity 66 cents; 27 gravity 67 cents; 28 gravity 69 cents; 29 gravity 71 cents; 30 gravity 72 cents.

Coalinga: 14 to 24.9 gravity 55 cents; 25 gravity 57 cents.

Wheeler Ridge: 55 cents a barrel.

Athens, Dominguez and Rosecrans: 24 to 24.9 gravity 69 cents with differential of two cents for each degree upward. Top price, 34 gravity, 89 cents a barrel.

Oklahoma-Kansas-North Texas: (Effective July 24, 1931 Below 36 gravity, 35 cents; 36 gravity and above, 40 cents a barrel. North Texas posting includes all produced in **Wichita, Wilbarger, Archer, Northern Young, Van Zandt, Mexia, Powell, Boggy Creek, Richland, Wortham and Currie.** Same posting applies to **Ranger** and **Moran** crude.

Texas Panhandle: (Effective July 24, 1931).

Gray County 30 cents flat.

Carson and Hutchinson County oil 27 cents flat.

West Texas: (Effective July 24, 1931)

Crane, Upton, Crockett, Ector, Howard, Glasscock, Pecos and Winkler Counties, Texas, and **Lea County, New Mexico,** 25 cents flat.

Southwest Texas: (Effective July 24, 1931)

Refugio heavy oil 44 cents a barrel.

Refugio light oil—same as Gulf Coast (see below).

Gulf Coast: (Effective July 24, 1931)
Goose Creek, Hull, Liberty, Orange, Pierce Junction, Mykawa, Moss Bluff, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugarland, West Columbia, Humble and Refugio Light: Below 25 gravity 40 cents, with differential of 1 cent for each degree beginning with 25 gravity and ending with 35 and above. Top price, 51 cents a barrel.

Mirando: 44 cents; **Salt Flat:** 37 cents; **Darst Creek:** 37 cents; **Pettus:** 50 cents; **Markham:** 25 cents.

North Louisiana and Arkansas: (Effective July 24, 1931)
Caddo, Homer, Haynesville, Bull Bayou, Sabine, Crichton, De-Soto, El Dorado, Cotton Valley, Sarepta, Carterville: Below 29 gravity 30 cents with differential of 1 cent for each degree beginning with 29 gravity and ending with 40 and above. Top price 42 cents a barrel.

Smackover: 30 cents; **Urbana:** 20 cents.

Rocky Mountain States: (Effective July 25, 1931)
Salt Creek: Same as Mid-Continent—below 36 gravity 35 cents, 36 gravity and above 40 cents.
Elk Basin and Grass Creek: 65 cents; **Big Muddy:** 45 cents; **Lance Creek:** 80 cents; **Rock Creek:** 50 cents; **Sunburst:** 80 cents; **Mule Creek:** $1.05; **Rex Lake:** 95 cents; **Osage:** 35 cents; **Cat Creek:** $1.10; **Pondera:** $1.30; **Hogback, New Mexico:** $1.25.

Eastern States: (Effective July 25, 1931)
Lima: 70 cents; **Indiana:** 35 cents; **Illinois:** 55 cents; **Princeton:** 55 cents; **Wooster:** 73 cents; **Western Kentucky:** 50 cents.
Pennsylvania: (Effective July 11, 1931). **Bradford District:** $1.60; **National Transit oil:** $1.35; **Southwest Pennsylvania Pipe Line oil:** $1.20; **Eureka Pipe Line oil:** $1.10; **Buckeye Pipe Line oil:** 95 cents; **Corning crude:** 50 cents.
Michigan: (Effective July 11, 1931). **Midland:** 37 cents a barrel. **Muskegon:** Same posting as Mid-Continent: 35 cents to 40 cents a barrel. (Effective July 24, 1931).
Canada: (Effective July 24)
Petrolia: $1.75; **Oil Springs:** $1.82.

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Texas Legislative Investigation Nearing Termination

AUSTIN, Texas.—Bringing out full and complete testimony on every phase of the oil industry from men well qualified, the oil probe of the Texas legislature approaches its conclusion with the more recent testimony of Underwood Nazro, representing Gulf Production Company, Wm. R. Boyd, Jr., executive vice-president of the American Petroleum Institute, and E. W. Swanson, chief economist of the Bureau of Mines. Others, heard earlier in the investigation include: Governor Sterling; Ralph C. Holmes, president of The Texas Company; W. S. Farish, president, Humble Oil & Refining Company; R. R. Penn, prominent independent operator; E. V. Foran, technical advisor to the central proration committee; Ray Richmond, chief umpire for East Texas; and Pat Neff, formerly chairman of the Texas Railroad Commission.

East Texas, as the center of the controversy, was condemned by every witness as the cause of the present overproduction in the state which has broken the price of oil throughout the United States and which has even affected the price of the product throughout the world. Senator Tom Pollard, however, championed the cause of the district which he represents, and sought to prove by every witness placed on the stand that there existed a conspiracy in the oil industry against East Texas.

As the hearing progresses it becomes more and more evident that passage of an adequate conservation bill to handle the situation, is necessary, particularly after the announcement of the decision in the MacMillan case which was unfavorable to proration as presently enforced by the railroad commission. Whether or not this bill will include a new commission to handle conservation exclusively, is still a moot question; but it is pointed out by leaders in both houses that a conservation measure will be passed very similar to the Wagstaff bill, outlined in the last issue of THE OIL WEEKLY, and which was worked out on the general lines of the bill prepared by the oil emergency committee, except that it does not limit production of the state to market demand.

In his appearance Friday, July 24, W. S. Farish, aided by charts and statistics, presented interesting and worthwhile testimony. He gave a short history of the industry in the state, cited prices, costs, and other financial statistics, not only with respect to his own company, but for the industry in America and the world. He denied price control by the major companies, pointed out that his company would like to see oil at $1 per barrel, outlined refining costs, and gave complete details of the operation of the companies he represents.

Limit to Market Demand

In his appearance before the investigation, R. C. Holmes, president, The Texas Company, said that he was strongly in favor of conservation and that he would like to see the powers of the conservation commission increased. He added that his company had no fear of such control. He pointed out that production should be brought below 300,000 barrels a day in order to create a sellers' market. He also proposed a law limiting production to market demand.

R. R. Penn, chairman of the central proration committee, gave his view on the situation and gave a history of the activities of the central committee. Mr. Penn favors allocating to each producer in the field that amount of oil which a survey shows belongs to him. He also favors determining the potential of fields, allocating to each lease that percentage of production which is in proportion to the acreage.

Ray Richmond, chief umpire for East Texas, explained the duties of the umpires and gave a history of his work in the Yates pool and the new East Texas field. He insisted that the major companies do not benefit especially from the administration of a field by umpires.

Governor Neff, in his testimony, charged the railroad commission with inefficiency, and offered a plan by which the commission could control production at the present time under the present law by forcing producers to space wells further apart than 300 feet, the rule enforced at present.

Judge R. L. Bates, University regent, appeared before the senate Saturday afternoon and gave a picture of the gas waste that is taking place in the university field of Reagan County. He urged the creation of a special conservation commission to handle oil and gas waste, and legislation to conserve natural gas.

Monday, April 27, Wm. R. Boyd, Jr., executive vice-president of the American Petroleum Institute, traced the history of the production, transportation and distribution in the industry. He pointed out that there was no indication of monopoly, prive-fixing by agreement, or lack of competition in the business, and that it was necessary to fix production at a point where it will stay in constant balance with market demand.

E. B. Swanson, chief economist of the Bureau of Mines, gave the economic history of the development of the oil industry since 1857, and gave statistics on production and demand for the remainder of the year.

Others heard Monday included W. E. Duffy, East Texas operator, Harry Pennington, representing the independe refiner, and Joe Danciger, Fort Worth independent. Mr. Duffy accused operators in his immediate sector in East Texas, of excessive withdrawal of oil contrary to proration orders. Mr. Pennington stated that independents were opposed to this session of the legislature as they fear commission control of production to market demand, which, he said, would keep the independent refiner from getting enough oil to operate his plant. Mr. Danciger told the house committee that the present price-cutting was an effort on the part of the major companies to eliminate independents but gave no specific information on this subject. He quoted Roger Babson to the effect that proration was an artificial effort to prevent the operation of the law of supply and demand.

Lon A. Smith, member of the railroad commission, issued a statement in defense of the commission's actions, in answer to charges made the day previous by Pat Neff. He defended the acts of the commission and charged Mr. Neff

with political ambition and general indecision, claiming that he had ceased to champion the cause of proration when it had become evident that it was not popular with the masses.

Nazro Says Laws Sufficient

In explaining the attitude of the Gulf companies in Texas, Underwood Nazro told the senate investigating committee on Tuesday, July 28, that the "Gulf has been alone in the solitude of its originality," insofar as oil legislation is concerned. He insisted that the present laws on the statute books were sufficient to control waste in Texas, and that his company was opposed to any legislation which would permit the curtailment of production to the market demand, as this is no more than legislative price fixing.

Mr. Nazro assured the committee that if the present laws were carried out and proper regulation of oil and gas ratios was effected, it would cut the production of Texas approximately 20 per cent, and this would undoubtedly have an influence of improving the price of crude.

He said he was opposed to the idea that the pool is owned in common by the parties owning the surface rights, and that no legislation allowing or requiring a commission to enforce the operation of a pool as a unit should be passed. However, he favors the passage of a bill permitting companies to operate pools as a unit, if they as operators see fit to do so. He insisted that many of the marginal wells which are now being abandoned will not be completely lost, and pointed out that these shut-downs have occurred in the past, and that later the operators went back in and recovered the oil.

He explained that the present overproduction is due to the cry of "wolf" that was raised in the oil industry in 1923, when most of the operators thought that the limit of production was in sight, and every scientific means was brought to bear on the situation in an effort to find more oil pools. "They were too successful, but up until the last year or so, consumption has kept pace, to a large extent, with production, and fair prices have prevailed. This present situation is nothing new in the industry, and will come again in the future, as there is no power in the legislature to control the law of supply and demand, although they may prolong the agony for the small producer."

He explained that it was beyond the power of the legislature to pass an effective oil-gas ratio law, unless its administration is left to a body which would have the right to determine the ratio for each individual well. He pointed out that in the Woodward-Wagstaff bill, the commission is to set the ratio for areas, which is totally impractical, as each well and each field is a problem in itself.

Plan for Unit Operation in East Texas Talked at Dallas

Dallas, Texas.—Grouping of one or more sections of the East Texas field for development on a unit plan basis was given consideration during a series of conferences held here July 25 and 27 by a score of leading major and independent companies in the field. The object in view is to save a portion of the prolific area from the wasteful operations now being generally carried on; and the projected plan would be strictly on a voluntary basis.

A committee of five was appointed to make a thorough study of conditions, and report on the feasibility of a unit plan being applied. A legal committee, consisting of three attorneys of companies, also was appointed to report on the legal aspects of the movement.

Another conference of operators will be held when these committees have completed their assignments.

Oklahoma Governor Says Prices Increase or Wells Will Close

Tulsa.—Unless the price of oil is $1 per barrel by August 1 the Oklahoma oil fields now under proration will be closed by executive order. This ultimatum was given the crude oil purchasers of Oklahoma by Governor William H. Murray at noon Tuesday, July 28. He said he would, if necessary, enforce the order by military authority.

"Oil should be more than $1 a barrel," he explained, "but we'll give them a chance to raise to that figure. If they do not then I'll issue my executive order and shut down everything that is now under proration. The state and schools are getting nothing in the way of taxes from oil at the present price. We can't let that go on, depleting our resources and getting no taxes from them."

While a move of this type will be extraordinary, expression of attorneys is that it is within the authority of the governor to issue and enforce such an order. Murray has pointed out decisions, which he contends are precedents for such action. He will be acting as a sovereign to protect the income of the state and his order will be subject to no countermanding other than an order from the President of the United States.

Tuesday no other major purchaser had met the flat price of 50 cents per barrel posted Monday, July 27, for Oklahoma and Kansas by Sinclair Refining Company; for this reason there is no indication that the price of Mid-Continent oil will reach the $1 per barrel figure by Saturday, August 1. So the executive order of the Oklahoma governor seems a certainty.

When effective such an executive order will remove more than 300,000 barrels daily from the Oklahoma total production. The average daily output of Oklahoma fields now under proration was close to 310,000 barrels during June. There has been a slight reduction since then.

Based on figures of production for last week the removal of all output from fields now under proration would leave Oklahoma with only 171,620 barrels daily from its wells of stripper class.

What the order actually does in the way of reducing daily production will have to be determined after the measure is issued, since it may make provisions for the production of wells of certain types and those in danger of loss from peculiar conditions.

The Murray ultimatium came the day following the mass meeting of oil producers in Tulsa Monday night. This assemblage of producers proved to be a gathering of determined men, who are bent on using whatever means they can find to force the price of crude oil upward. A paragraph from a letter written by the Oklahoma governor revealed that he was considering his shut-down order. He suggested that the problem be studied from the viewpoint of the public interest and that a committee from the meeting then call upon him. While no committee was named reports on the tenor of the meeting were given the governor the next day by his representatives.

The definite action of this meeting was the adoption of resolutions. One was adopted in favor of a tariff on imported oil; another placed the meeting on record as favoring a shut-down of producing wells until prices reach a figure sufficient to pay costs and leave a profit. The necessity for shutting in production voluntarily was stressed at great length by most of the speakers.

Russell Brown of the Independent Petroleum Association of America presided. H. B. Fell of Ardmore laid some of the blame for conditions in the oil industry at the door

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of independent producers. He classed the present situation as a clash between buyer and seller. Producers, he said, are offering more oil than purchasers want. The only remedy he could suggest was a move to take away this excess of offered oil by voluntarily closing in wells or running oil to storage.

A. M. Landon of Independence, Kansas, said the independent producers would have to continue their shut-down move in order to accomplish their demand for a satisfactory price. He criticized major companies for recent crude price reductions with no changes in retail prices. He suggested that producers buy gasoline from refining concerns, which are paying the highest prices for crude oil.

A hint of action on the part of Governor Woodring of Kansas was carried in the message read by Thurman Hill, chairman of the Public Service Commission of that state. He said the governors of Kansas and Oklahoma are far different in many characteristics but that each has ample courage for carrying through plans selected to change conditions in their states. There was a clash of opinion when a telegram was proposed for delivery to Patrick J. Hurley, Secretary of War. The meeting finally voted to send the message, which demanded that Hurley answer in behalf of the national administration as to its present stand on the question of a tariff on crude oil. Its wording was caustic and left the impression that no answer would be accepted as evidence that the administration either opposed a tariff or cared nothing about conditions among oil producers.

Court Holds Proration Rules In East Texas "Usurpation"

Austin, Texas.—By decision of a three-judge federal court, the Texas Railroad Commission's East Texas proration orders were declared "usurpations" of powers not delegated to that body. The decision was handed down in Houston, Friday, July 24, in the injunction suit brought by MacMillan Petroleum Corporation against the commission.

The court presided over by Circuit Judge J. C. Hutcheson, who wrote the opinion, did not consider, and pointed out that it could not have considered, the question of the constitutionality of the order. It did adopt the position of the MacMillan counsel that the commission has "no right to establish a conservation policy of its own of broadly economic kind in question here, with all the serious complications which it entails, and make that policy effective against attack by camouflaging with words its real purpose and effect, or by pointing to some result in keeping with its powers which may incidentally or accidentally flow from it."

The opinion described the proration orders complained of as resting "not upon legislative authority or direction" and having "no relation to conservation of resources," but as "merely an arbitrary order designed to control the output, price and market for crude oil by reducing the supply of oil to the demand for it."

Receipt of the opinion at Austin caused considerable confusion among leaders of the industry gathered to attend the investigations into that industry, being conducted by the house of representatives and senate, respectively. However since the opinion did not rest on the question of the constitutionality of the orders, the concensus among representative oil men was that the necessary market demand law would have to be passed.

Widely Drilled Area Retards East Texas Water Intrusion

Tyler, Texas.—Negligible salt water trouble in East Texas is largely due to the large area exposed to oil and gas drainage, which was estimated at 32,354,000 barrels up to the close of June from 120,000 acres of oil land, or an average of only 270 barrels per acre. Limited experience had by operators in dealing with the water situation has proven conclusively that the exhaustion, or drowning of the gas flow from wells making water will automatically terminate the natural flow, as illustrated by a number of water wells going dead on the west flank of the field lately.

About 30 successful completions in the field have shown water, but the number of wells now making water in any appreciable quantity have been reduced to about one-third of the above number through plugging back the hole above the known water level, or through the application of rigid production restrictions.

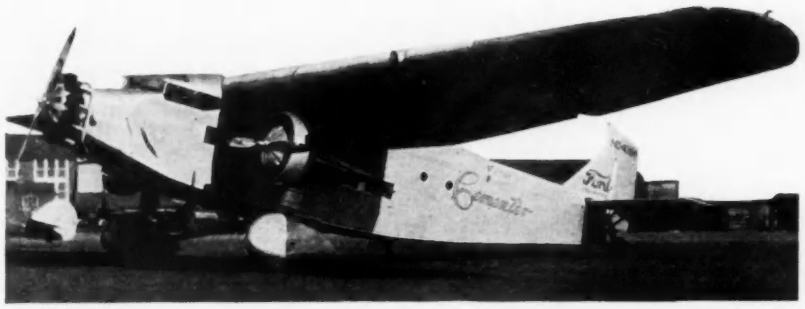
Handling of water threatens to become a difficult and expensive burden, with no definite plan for coping with the situation. Meetings have been held for the purpose of arranging a joint water disposal plant, or plants, but all practical methods require an almost prohibitive expenditure in view of the fact that water production of the field is expected to exceed 1,000,000 barrels daily in later years. Individual pits are now being provided by the owners of wells producing water with oil.

The Kilgore area, or mid-section of the field, has been the principal source of water encroachment, partly due to having experienced the greatest oil drainage to date, and also because of operators having carried wells below the danger zone for water in trying for big wells. The spread of water in the northwest portion of the Kilgore area is believed to have been aggravated by an outpost well on the Cole land flowing open and aflame for about two weeks. Sinclair Oil & Gas Company, owner of this particular well, now has three wells on the Cole land that are making a high percentage of water, including one located on the east of the lease that has not been operated since completion as a 200 barrels per hour well at 3584½-86 feet, with top of sand at a sub-sea depth of 3322½ feet. Magnolia Petroleum Company's Cole 1, an east offset is cutting from 18 to 40 per cent.

One well owned by Burton Drilling Company et al on the Florey tract, on the west flank of the main part of the Kilgore field, is reported to have ceased flowing after having attempted to produce the bottom hole water with the oil. Harry W. Elliott et al's Terrell 1, in the same area, also quit flowing when operated under the same conditions. Orders have been cancelled to standardize the latter for pumping. Magnolia Petroleum Company's Florey 1, in the same area, was first to report water, and failed to eliminate the trouble by blugging back, but has continued to flow by pinching production to about 200 barrels daily. The latter is cutting about 18 per cent. East Texas Refining Company's Wills 1 and 5 are also reported to have gone dead after making salt water in varied amounts, depending on the size of choke applied. Some of these wells are believed to be flooding the oil producing horizon with water because of being drilled too deep, and causing other wells in the general vicinity to show water and cut oil.

R. M. Weaver-Stanolind Oil & Gas Company et al's Everett 1, in Upshur County, north of Gladewater, is reported to have quit flowing during the past week after having developed a high percentage of salt water immediately after being completed June 27 making 125 barrels oil per hour via three-quarter-inch choke on tubing at a total

(*Continued on page* 108)



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Lately, important business commanding his attention at Houston, he and a staff of able lieutenants zoomed from the 'blue' on to Houston's Municipal Airport in his personal Ford Tri-Motored Plane, the well-known 'Cementer.' Followed a week of heavy conferences at the Rice Hotel, where Mr. Halliburton always stops when in Houston, then a hasty take-off . . . and a news report of his landing next in Los Angeles.

It is men of Mr. Halliburton's caliber, men who demand real service and accommodation from a Hotel, who have spread the fame of the Rice Hotel Group in the Oil Industry. And we believe we may say without boasting that at the Lamar Hotel, the Texas State Hotel, the San Jacinto Hotel or the Rice Hotel we have learned how to make an oil man as comfortably at home as a roughneck under a boiler!

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Oklahoma--Kansas Field Notes

FLOYD SWINDELL, *Staff Representative, Tulsa, Oklahoma*

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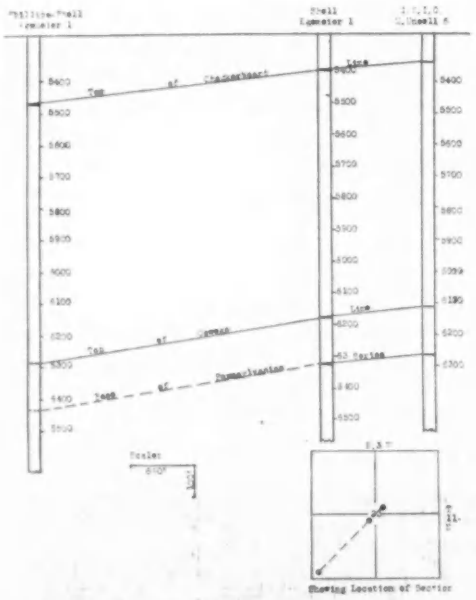
Well Testing for Wilcox Holds Interest in Oklahoma City Area

Oklahoma City.—The most interesting test in the Oklahoma City field is Phillips Petroleum Company and Shell Petroleum Corporation's Egemeier 1, SW SW SW Section 23-11n-3w, approximately 3000 feet southwest of production in the central portion of the pool. This is the first well to test for Wilcox sand in this part of the pool; and the depth at which that formation will be encountered is problematical. For reference Shell Petroleum Corporation's Egemeir 1, NE NE SW Section 23-11n-3w, and Indian Territory Illuminating Oil Company's Mary Unsell 6, SW SW NE of the same section, have been chosen. These two producers and the present Wilcox test are on a northeast-southwest line on the southwest flank of the structure. Tops of the key formations are as follows:

	I. T. I. O. Mary Unsell 6	Shell Egemeier 1	Phillips-Shell Egemeier 1
	Feet	Feet	Feet
Checkerboard	5345	5400	5470
Datum	-4090	-4118	-4205
Oswego	6120	6180	6290
Datum	-4865	-4898	-5025
Base Penna.	6270	6325	6435 ∫
Datum	-5015	-5043	-5170) Estimated

The base of the Pennsylvanian and top of the expected Wilcox sand were estimated on the interval between the top of the Oswego and base of the Pennsylvanian in the two reference wells. The last drilling report shows the operators preparing to run casing with total depth at 6444 feet in a sand.



Cross-section showing structural position of Phillips and Shell's Egemeier 1, Section 23-11n-3w

Rice County's Latest Well Is Less Promising When Deepened

Wichita, Kans.—Deitrick and Langston's Purcell 1, NW NW NW Section 33-19s-9w, Rice County's latest discovery well, is not looking as good as it did a week ago when it was reported standing with 2200 feet of fluid in the hole from siliceous lime at 3290 feet. Since that time it has been drilled to 3299 feet, where it has about 500 feet of fluid in the hole, most of which is water. Siliceous lime was originally reported at 3271 to 3293 feet. After passing 3274 feet the hole filled 2200 feet in 22 hours, subsequent swabbing tests revealed that the column could be easily lowered almost to bottom. More recent reports hold that the pay formation is a conglomerate which is composed in part of siliceous lime. First water showed at 3298 feet and this was believed to be coming from behind the casing. However, the additional foot of drilling brought an increase in water and it now appears that the source is from the bottom. It will be plugged back to shut off water and may further test the Oswald lime where it had some showings. This is the tenth discovery well in western Rice and Ellsworth Counties and so far none have acquired connections.

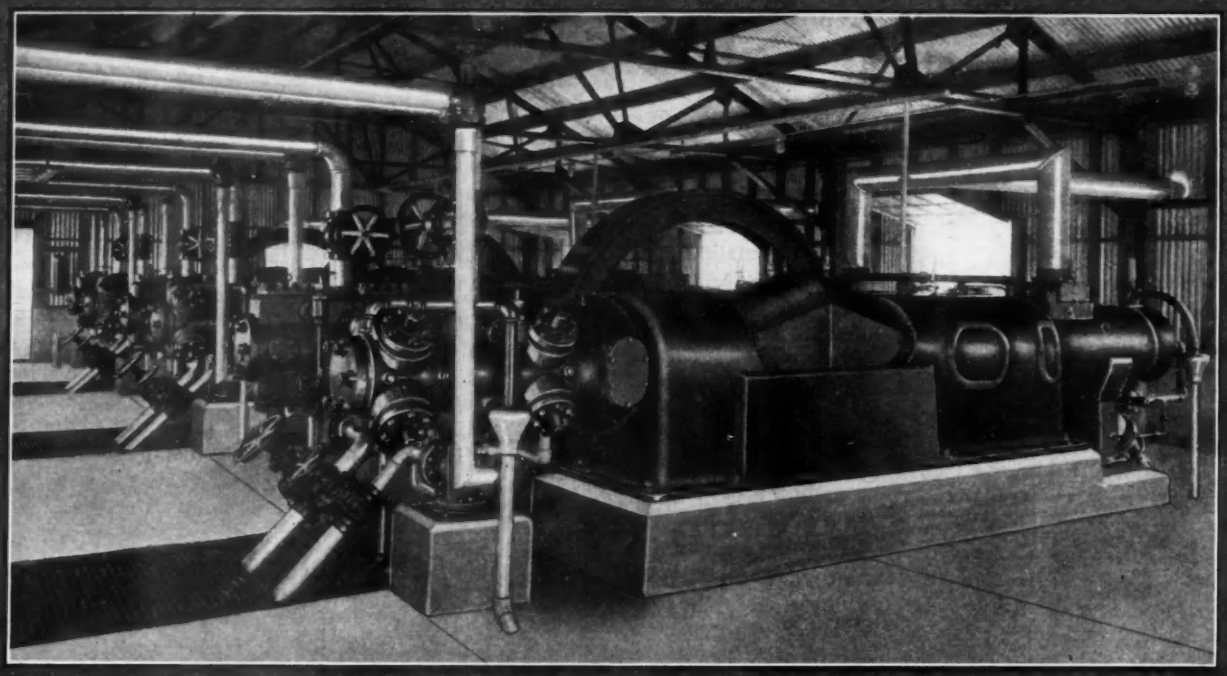
Abilene Oil Company and Shell Petroleum Corporation completed two wells in the Viola discovery area when Anderson 1, NE NE NW Section 30-19s-1w gauged a potential of 666 barrels from Viola lime at 3413 to 3425 feet, and Anderson 2, NE NW NW of the same section, produced at the rate of 1934 barrels the first 24 hours from Viola lime at 3409 to 3419 feet. Twin Drilling Company and Phillips Petroleum Company topped the Viola lime at 3417 feet in P. M. Gratton 2, SEc Section 19-19s-1w, and was swabbing about 10 barrels of oil and 1½ barrels of water hourly after drilling one foot in. The last few hours of swabbing indicated that the water was exhausting and it may be that the source is from above the casing seat.

Derby Oil Company and The Texas Company are plugging to abandon L. A. Floak 1, Swc Section 29-19s-1w, after penetrating Viola lime from 3426 to 3461 feet. McBride, Incorporated's, Whitwright 2, NW NW SW Section 30-19s-2w, is the first well in that section to make commercial quantities from the chart horizon. After topping the chat at 2918 feet the test encountered 14,500,000 feet of gas from 2930 to 2942 feet.

McPherson Oil and Gas Development Company and Shell Petroleum Corporation completed two wells in the Decker gas field. Decker 4, CNE SE Section 11-19s-2w, topped the chat at 2895 feet and set eight-inch casing three feet in. First gas was found at 2900 and at 2915 feet, the well gauged 57,000,000 cubic feet at 875 pounds pressure. The Giffin 3, CSE NW Section 14-19s-2w, had chat from 2893 to 2938 feet, where it gauged 14,300,000 cubic feet at 840 pounds pressure.

Sobey et al have spudded Bowman 2, CNL SE Section 8-32s-5e, in the Winfield gas area of Cowley County. Gore and Tidal Oil Company's Davis 1, NWc SE Section 6-24s-12e, produced 150 barrels of 40 gravity oil during the first 24 hours from sand logged at 1720 to 1757 feet. Phillips Pipe Line Company is connected.

CLARKS in CANADA



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East Central Texas Field Notes

H. H. KING, ***Staff Representative, Fort Worth, Texas***

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Price Advance in Old Fields Stimulates East Texas Demand

Tyler, Texas.—East Texas crude is to be used by owners of large tank farms in the Southwest in replenishing stocks of oil at low prices as result of these companies having failed to accomplish their objectives in accumulating surplus crude during the low price period in the older fields. In contrast to the position taken by the operators in the older areas in refusing to market their normal production at the low price level, the East Texas group are willing to throw their wells open at the best price obtainable. Contracts involving the delivery of nearly 10,000,000 barrels of crude have been made by East Texas operators and companies within the past 10 days with a group of major and independent refining units, and rate of delivery invariably involves proration violation.

These developments preceded the rendering of a decision by a three-judge federal court that the existing proration laws of Texas are void because of not being authorized by statutes, based on the case of Alfred Macmillan et al vs. the railroad commission. The plaintiff in this case was attacking the right of the state to regulate production from leases in East Texas. Although an appeal will likely be taken by the state, this decision has been accepted by most operators as making them immune from interference in producing oil until a law is enacted. The result is that proration was being observed at the start of the present week strictly on a voluntary basis, or to the extent of market outlet within reach of the various well owners.

Series of price advances given older fields served to stimulate interest of crude purchasers in booking large quantities of East Texas crude for future delivery at fixed prices, which range from 18 to 10 cents per barrel loaded aboard tank cars, or delivered into purchasers' pipe lines. With few exceptions these purchases specified daily deliveries in excess of proration allowances of producers contracting to supply the oil, thereby forcing other operators to take similar steps towards protecting leases from drainage. Almost general disregard of proration was threatened by the terms of these new crude contracts because of their influence throughout the field even though the gederal court decision had not been rendered.

Just prior to this quantity buying of crude the price structure was stiffening through nearly all unconnected wells having been given, or assured of immediate pipe line and market relief. Magnolia Petroleum Company and Sun Oil Company, both adhering to a 20-cent flat posting, had set the pace on taking on new connections, and prospects were favorable for other major companies to resume postings, with a more liberal price than paid under the "weighted average" plan. As the situation now stands a general improvement in the price structure has been delayed indefinitely, and probably not until the field approaches its peak level of production, or until an enforceable law is enacted by the legislature to govern production.

The Texas Company is reported to have made contracts through brokers for deliveries that will aggregate more than 3,000,000 barrels of crude, including 100 tank cars of crude daily from one account. The bulk of these contracts involve tank car deliveries, although the purchaser reserves right to use pipe lines when available. Texas Unity Oil Company began shipping 100 cars daily to The Texas Company early this week, according to reports, after having maintained an average of about 8000 barrels daily during the week ending July 22. These deliveries are made on a 1,000,000-barrel spot contract credited to B. T. McNeil, Houston broker, with the above company. Among other contracts made by The Texas Company for crude is a 300,000-barrel delivery to be made by John W. Hooser et al at 15 cents per barrel loaded on cars at Overton. Ocean Oil & Transport Company, headed by Jim McMahon of Dallas, is reported to have made this sale. Tyler Pipe Line Company, Pilot Oil Company and Sabine Oil & Pipe Line Company are also making heavy tank car deliveries to The Texas Company. This oil is being consigned to the purchaser's refineries at Houston, Port Authur and West Dallas.

Independent refineries in East Texas, including Central Refining Company, Constantine Refining Compay, Kilgore Refining Company, Taylor Refining Company and others have contracted lately for crude over one, two and three year periods that will involve more than 5,000,000 barrels of oil, if producers are capable of making deliveries. American Petroleum Company is credited with having purchased 1,000,000 barrels of oil for future delivery from two separate producers, and also 100,000 barrels from Marine Corporation. Some of this crude is moving in tank cars, and the balance through lines of the Liberty Pipe Line Company and Magnolia Pipe Line Company. Star Refining & Production Company, Fort Worth, has contracted for a minimum of 1200 and a maximum of 1500 barrels daily over a period of two years, beginning September 1. Vacuum Oil Company, Tidal Refining Company, Atlantic Oil Producing Company, Sinclair Refining Company, Shell Petroleum Corporation and numerous others have booked crude contracts lately for specified quantities of oil, if available.

Two Kilgore Wells Defy All Efforts to Control

Tyler, Texas.—Two wells flowing unrestrained in the Joiner section will probably have to be controlled by the tunnel method of killing the production as result of unsuccessful efforts waged by the owners. Tulsa Oil Company's O'Quinn 1, which caught fire June 23 and burned until July 7, when a third try with nitroglycerine extinguished the flames, sustained damaged casing, and flows oil via water wells located as far as 1200 feet from the hole when attempt is made to restrict the flow. Repeated efforts have been made to kill this well by the pumping of baroid, bran, mud, sawdust, cotton seed hulls and various other commodities into the hole. Checking of the oil seepage into shallow water sands is accomplished by flowing the well open at about 10,000 barrels daily. Work has been started on a tunnel that is planned to encounter the casing below

ANNOUNCING

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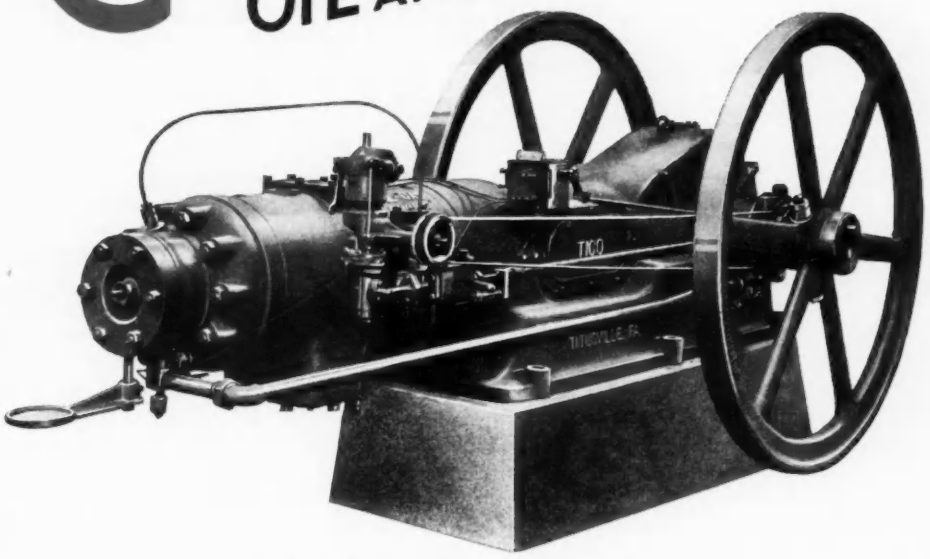

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REALIZING that localities such as East Texas require a dual operated engine, we have designed and perfected a unit which can be *changed from Gas to Oil fired,* or from Oil to Gas in *two hours.* This is not a makeshift, but a rugged, serviceable and thoroughly dependable engine.

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Every experienced operator knows the honest performance of TICO engines—and this equally reliable convertible design will further advance the excellent reputation which our TICO Gas Engines have built up—we have kept our faith with our friends. The cost is nominal and the ratings guaranteed.

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TIW-98

the split joints, and then try and kill the flow by obstructing the passage.

Vitek et al's Eaton 5, which has been burning since July 12, failed to respond to a chemical attack given the flames last week, and negotiations are being made for the sinking of a tunnel to check the flow. The spread of flames from this well are so great that a shot will not extinguish the blaze. Paul Vitek lost his life along with two workmen when the well caught fire, and three sperate receivers have been appointed by as many district courts to manage the properties. Litigation has developed between these receivers, as to who shall have charge, and until this matter is settled in the courts the well is destined to remain in its present status.

Houston.—After having drilled to 3035 feet, Paul Vitek has temporarily abandoned M. B. Hayter 1, wildcat well seven miles west of Nacogdoches, in the county of the same name. Hayter 1 is 150 feet from the north and 1200 feet from the west lines of the 80-acre tract in the M. de Los Santos Coy Survey.

Production Gain Indicates Disregard for Proration

Tyler, Texas.—Disregard of proration restrictions is becoming more general in East Texas as evidenced by the fact that production registered a gain of nearly 100,000 barrels daily during the past week when a daily average of 505,185 barrels from 1312 producers was maintained. This rapid rise in output is having a bad effect on the price structure because of operators not protected with market outlets again showing a willingness to accept the best price obtainable in making spot sales in order to gain protection from drainage. Offers of large quantities of crude at 10 cents per barrel at the well put in their appearance during the past week, and further price reductions are in store for the district as result of proration rules of the Texas Railroad Commission having been declared illegal.

East Texas Production

Daily average production of the Joiner-Kilgore district and the Longview field is shown below, with total number of production wells included:

	JOINER-KILGORE		LONGVIEW	
Week Ending—	No. Wells	Daily Average Production	No. Wells	Daily Average Production
February 18	22	19,090	1	6,511
February 25	24	24,954	1	7,044
March 4	39	51,475	1	4,578
March 11	50	75,170	1	7,170
March 18	64	75,540	5	14,021
March 25	81	104,345	6	17,769
April 1	115	119,500	11	24,990
April 8	159	165,250	16	26,000
April 15	198	210,208	25	38,180
April 22	234	239,515	30	58,480
April 29	298	271,070	39	68,715
May 6	344	216,650	46	52,250
May 13	434	208,900	58	48,550
May 20	463	242,300	70	61,510
May 27	524	279,072	86	71,017
June 3	592	284,765	111	66,710
June 10	655	282,305	126	46,729
June 17	729	302,990	142	68,370
June 24	805	274,050	161	85,880
July 1	872	256,990	189	95,270
July 8	926	285,999	219	97,765
July 15	989	318,930	235	90,400
July 22	1,054	394,030	258	111,150

North End Tests Showing Oil; Production Now 33 Miles Long

Longview, Texas.—Coring of oil saturated sand during the past week by two outpost tests forecasts important extensions in Gregg and Upshur Counties, and provides the district with an unbroken productive length of about 33 1/3 miles in a northeast to southwest direction. The two tests are about 3½ miles apart, and indicate that the north end of the structure remains to be defined, although conceded to be narrow.

C. M. Becker, Tyler, and associates' J. C. Barrett 1, located on a 100-acre lease in the B. W. Witche Survey, is to provide the northeast extension for Gregg County after having cored sand with gravel breaks from 3607-20 feet. Casing has been cemented at 3604 feet. This test was drilled to a sub-sea depth of 3284 feet.

McMahon & McCullough's E. H. Hamilton 1, located in southeast corner of 80-acre lease, M. Chandler Survey, is believed to have encountered sufficient sand with broken formation logged at 3750-60 feet to afford a producer. This Upshur County outpost test is dangerously close to the known water level of the area, having a surface elevation of 434 feet.

An unusually prolific area for the Longview field was revealed by Magnolia Petroleum Company's Clarence Davis 1, located on 18.6-acre lease, Henry Hathaway Survey, as result of initial gauge of 1120 barrels of oil on first hour open flow from sand at 3569-3583 feet. It has a surface elevation of 393 feet.

Excessive oil drainage given the original portion of the Kilgore field was reflected by two inside tests drilled last week by Humble Oil & Refining Company on the L. D. Crim discovery lease. Crim 32 and 33 refused to flow after being swabbed from 40 feet and 20 feet of sand, respectively. Both wells have pulled tubing to deepen.

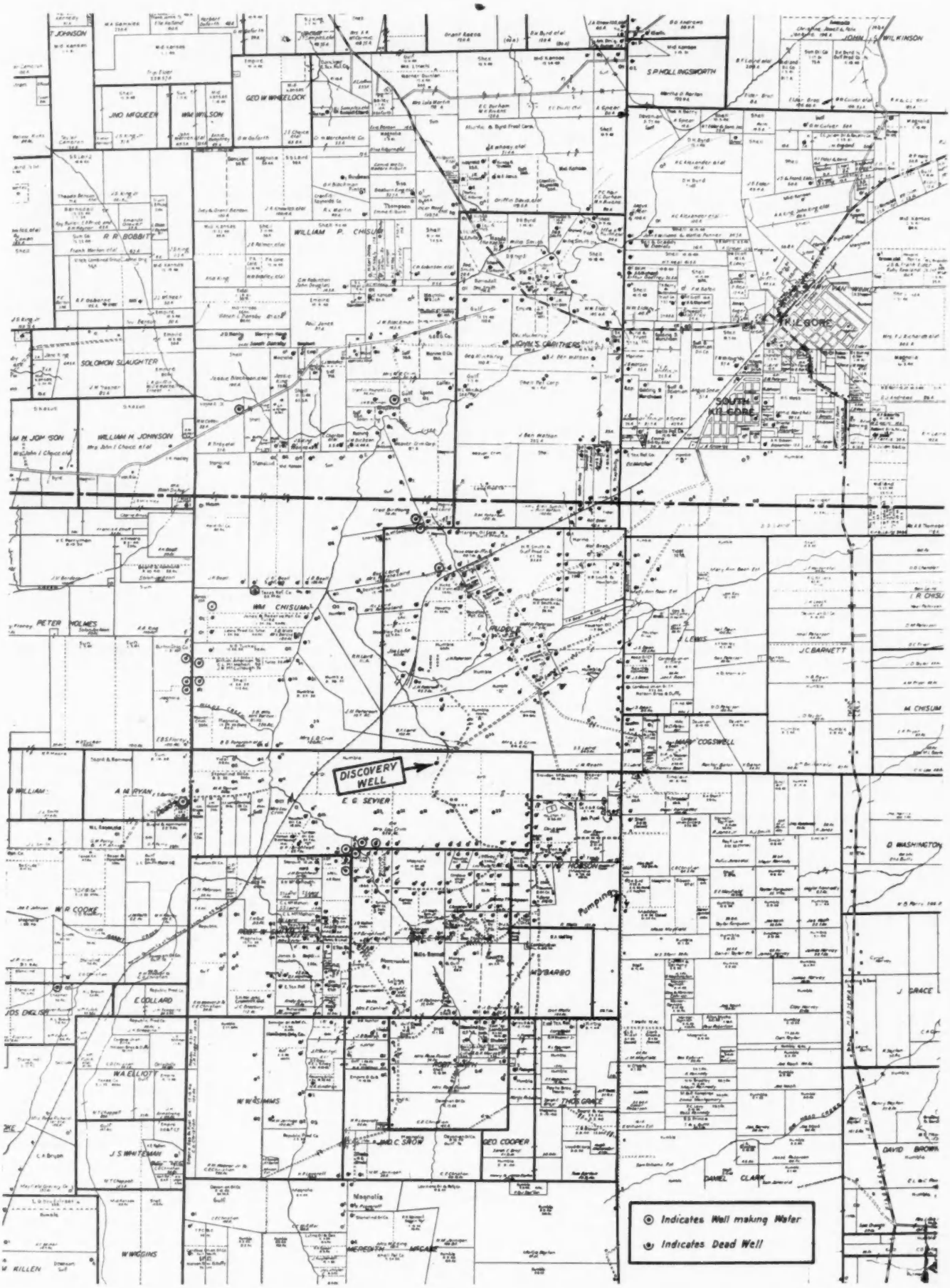
Widely Drilled Area Retards East Texas Water Intrusion

(*Continued from page* 102)

depth of 3617 feet. This outpost well was drilled to a sub-sea depth of 3321 feet, and is the only producer in the Longview area to encounter water with oil.

The west portion of the Joiner area has two wells that have been making water since placed on regular production. Sinclair Oil & Gas Company's A. S. Jarvis 1-A is making 10 per cent water while pinched to proration allowance. This company has adopted a rule of halting new wells above a minus depth of 3310 feet, and only a few feet of sand is to be drilled when the top is encountered at a sub-sea depth of 3295 feet. East Texas Refining Company's Tyiska 1, on the west edge of the Joiner field and far removed from any other producer, is maintaining a steady flow even though making lots of salt water. This well shows about 35 per cent water when pinched, but if placed on open flow the production is all water. The temperature of the fluid produced by this well averages about 119 degrees.

W. C. Thomas, drilling and production superintendent, Vacuum Oil Company, returned to his Houston headquarters early this week following a week visiting his company's properties in East Texas and a day in Dallas conferring with officials of other companies operating in East Texas on a unitization plan.



Map courtesy Zingery Oil Map Co., Fort Worth

Kilgore section of the East Texas field shown above has the bulk of the water wells, and also has been subject to the greatest oil drainage.

South Texas Field Developments

EARL POST, ***Staff Representative, San Antonio, Texas***

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Port Aransas Opens Oil Docks on Harbor Island

San Antonio, Texas.—Port Aransas formally opened its new $100,000 oil docks on Harbor Island July 21 when the J. C. Donnell, largest tanker in point of size of Atlantic Oil Company's fleet, docked to take an oil cargo.

The dock is 480 feet in length and is equipped with all modern devices for speed and safety. The hoists and pumps are worked by electricity, while special inventions are utilized to eliminate danger from fire. There is a loading capacity of 18,000 barrels of oil an hour.

Atlantic Refining Company has a lease for tank farm facilities on Harbor Island, where the company has tanks with a storage capacity of 455,000 barrels of oil.

Live Oak County Well Is Placed on the Pump

San Antonio, Texas.—Houston Oil Company's Cartwright 23, Sandman Survey, Lucas gas district of southeast Live Oak County, which found production in the new Oligocene sand a few weeks ago, has been put on the pump and is making an average of 100 barrels a day. The sand is at 3554-65 feet.

The same company's Cartwright 14, 1000 feet west of the Cartwright 23, also in Sandman Survey, which was deepened from 2095-foot gas level, had not encountered the sand, although the drill was at 3775 feet.

Catlett and O'Neill's Hatcher 1, approximately four miles northeast of the Cartwright wells, has fishing job at 2850 feet, where it twisted off the drill stem. The well is in the James McGlown Survey.

Laredo District's Production For June is 369,179 Barrels

San Antonio, Texas.—A total of 980 wells with an average daily production of 12,306 barrels, made pipe line runs totaling 369,179 barrels in the Laredo district covering Webb, Zapata, Jim Hogg and Duval Counties, during June.

The grand total production during the life of the district to the end of June was 28,320,208 barrels.

The Muckelroy extension of the Jennings field of Zapata County led the district, which includes 18 separate fields, with 135 wells making monthly runs of 37,833 barrels. Schooffield and O'Byrne field of Duval County with 49 wells was second with monthly runs of 82,442 barrels. The Cuellar extension of the Jennings field of Zapata County with 58 wells came third with 62,177.46 barrels. Cole field, of Webb County, with 66 wells, was fourth with 29,598 barrels. Old Aviator field of Webb County, with 131 wells, was fifth with 23,294 barrels, and the Randado field of Jim Hogg County with 142 wells, was sixth with 19,965 barrels. Runs of less than 15,000 barrels down to 248 barrels were made by the other 10 fields during the month.

Runs of 229,573 barrels from 449 wells were made by Magnolia Petroleum Company in pipe line runs during June; Humble Pipe Line Company, from 345 wells, made runs during June of 93,174 barrels; Texpata, from 61 wells, made runs of 22,055 barrels; Crown-Central Petroleum Company, from 80 wells, made runs of 16,145 barrels; Houston Pipe Line Company, from 37 wells, made runs of 4165 barrels; Carolina-Texas, from eight wells, made runs of 3177 barrels; and Laredo made no runs but has a total of 163,673 barrels.

Jim Wells County Well Is Small Gasser at 2804 Feet

San Antonio, Texas—Carsil Oil and Gas Company's McGill 3, in the Carsil gas pool of Jim Wells County, has been completed as a very small gasser at 2804 feet. The well has been showing plenty of gas, but the pressure has not "kicked in" as yet.

The well is 450 feet south and 300 feet east of the McGill 1, D. Baldwin Survey, which was completed as a huge gasser at 2689 feet to open a new pool in this county. The well ran wild, salt water broke in and plugging of the hole was necessary to protect the sand.

The second well was drilled to below 3000 feet without striking the gas horizon.

The McGill 3 topped the gas horizon, sand and shale, at 2745 feet, casing was set at 2700 feet, and the test sunk to a total depth of 2804 feet. A choke has been placed on the well and it is being allowed to flow in an attempt to increase the output.

Another Failure Recorded in Saxet Field, Nueces County

San Antonio, Texas.—Another failure was recorded in the Saxet field of Nueces County when Houston Oil Company's Morgan 2, a work-over well, showed salt water at 4097 feet. The well is being abandoned.

The well was originally completed as a small producer at 4095 feet, drilled to 6375 feet, then plugged back to 4095 feet, where second completion was attempted.

Houston Oil Company's Harrell 2, two miles northwest of the main field in the John E. Dunn Survey 312, is drilling at 2950 feet. This well blew in May 19 from 2725-40 feet and ran wild several days before being controlled. It opened a new gas horizon at that level.

Gulf Coast Oil Company's Maggie Harrell 1, Block 32, Section 311, G. C. & S. S. Survey, three-fourths mile north of the main producing area, is attempting a test of a sand cored at 4646-51 feet.

San Antonio, Texas.—Schimmel and Batts' (Texas Petroleum Company) Williams 2, in the serpentine pool recently opened by this company in Bastrop County, has been abandoned as a dry hole at 1808 feet, four feet in the Austin chalk. The well is 650 feet east of the company's Ferguson 1, best producer in the pool and is 1400 feet from the Williams 1, discovery well. Another well is to be started as soon as rigging up is completed. It is the company's Trigg 1, located 600 feet northwest along the property line from the Williams 1, thence 175 feet at right angles to that line in the J. Doyle Survey.

Gulf Coast Field Developments

JACK LOGAN, ***Staff Representative, Houston, Texas***

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Sun Oil Company Brings In Well at Barbers Hill

Houston.—Sun Oil Company, developing the John H. Smith property at Barbers Hill, completed John H. Smith 3 for 600 barrels initial production at about 5300 feet.

Total depth of the well was 5318 feet, but in backing up to side track the liner and screen at 5270 feet, final completion was made a few feet above the total depth.

Sun Oil Company has another drilling project on the Smith property which soon is due for completion. It is in the Smith 2, in which a showing of oil has been logged slightly below 5400 feet. An attempt was made to set five-inch screen at this point, but failed to be effective. At last reports Sun Oil Company was preparing to reset the screen and run the 4¼-inch milling tool.

In this field Sun Oil Company has six other operations under way. Of these two are more than half through drilling, while one which had drilled to below 4000 feet is being skidded to a new location.

Another Mykawa Test Added To List of Failures

Houston.—Humble Oil & Refining Company's Minnetex 6, in the Mykawa district of Harris County, Texas, was abandoned this week after having been drilled to 5889 feet. Minnetex 6 is located in lot 254, or 402 feet from the south and north lines, and 270 feet from the east and west lines of the Lovett Survey.

After twisting off the drill stem at 5889 feet, the well was plugged back to 5106 feet and an effort made to sidetrack early in the month.

Minnetex 6 recorded no showings of importance except a small show of oil sand at 4860 feet.

Well In Old Blue Ridge Field Has Initial of 126 Barrels

Houston.—Telschaw, Cady et al, drilling on the Blakely tract in the old Blue Ridge field, completed Blakely 1 last week for an initial production of 126 barrels which settled to 75 barrels daily of 38.9 gravity oil. Fifty-six feet of 4¾-inch screen was set at 2800 feet. Total depth of the well is 3105 feet.

Blakely 1 is located 150 feet from the north and 75 feet from the west line of the E. Drew Survey, Fort Bend County.

Two Wildcat Locations for Nacogdoches County

Houston.—Churchill and Armstrong are moving in a rig on a new wildcat location on the Mack W. Hart farm, seven miles west of Nacogdoches in Nacgdoches County. The test will be known as Mack W. Hart 1.

This week it became known that Taylor and Vaughn will drill a wildcat well 10 miles northeast of Nacogdoches and one mile north of Appleby in the M. G. Herrera Survey. The location is 160 feet from the west and 450 feet from the north lines of the 65-acre Greer tract. Greer 1 is the name of the location.

Lavaca County Wildcat Deep Test Is Abandoned

Houston.—F. P. Zoch's DeBord 1, rank wildcat in Lavaca County, was abandoned at 4520 feet in sand and shale after two futile drill stem tests, one at the above depth and one at 3240 feet. DeBord 1 is located a mile and a half south of the town of Ezzell, 950 feet from the north and 150 feet from the west line of a 250-acre tract in the T. G. Weston Survey.

25 Million Cubic Foot Gas Well Completed At Edna

Houston.—Chicago-Gulf Oil Company, operating on the Rodgers farm in Jackson County, Texas, completed Rodgers 1 for 25 million cubic feet of gas this week. The well, which had a total depth of 3952 feet, showed a pressure of 1530 pounds. Rodgers 1 is located in the Edna gas field.

Houston.—Rio Bravo Oil Company may drill deeper in its Settegast 22-A at Pierce Junction, after having tested 800 pounds dry gas pressure in the well at 4186 feet. One joint of 4¾-inch screen was set at this depth.

Goliad County's Second Oil Field Opened By Small Well

San Antonio, Texas.—Goliad County's second oil field was opened July 24 when the Neuhaus Drilling Company's Pettus 1 was brought in as a small producer at a total depth of 4298 feet. The well is located 4750 feet north and 28 degrees 20 minutes west of the extreme southeast corner of the 3418-acre tract in the Maria de Jesus Ybarbo Survey. It is about six miles south of the Slick pool and on a line with the Pettus field of Bee County.

The test flowed 20 barrels of oil through a 3/16-inch choke during the 12-hour period ending at 7 a.m., July 25, showing 700 pounds pressure on the casing and 400 pounds on the tubing. The gas output was estimated at 10,000,000 cubic feet daily. The chokes were changed to one-fourth-inch and on July 27 the well showed 110 barrels of fluid daily, 60 per cent water. The pressure on the casing increased to 800 pounds and the pressure on the tubing registered 420 pounds.

Owners are preparing to plug the well back about eight feet to 4290 feet in an attempt to cut off the water, which is believed to be coming from the bottom of the hole. The oil is of 45.6 corrected gravity.

The well was drilled by Southern Crude Oil Purchasing Company several years ago, but was abandoned at 3853 feet. Neuhaus Drilling Company took over the drilling of the test to the Pettus horizon on a 50-50 basis on the former's block.

The well cored a sand at 4282-87 feet, which showed saturation; a core at 4287-90 feet was not recovered; the well then cored sandy shale at 4290-93 feet. Hard, sandy shale was drilled to the bottom of the hole.

SUMMARY OF UNITED STATES FIELD OPERATIONS, FIRST HALF OF 1931 AND 1930

	Completions		Producers		Gas Wells		Failures		Initial Oil Production		Total Oil Production	
	1931	1930	1931	1930	1931	1930	1931	1930	1931	1930	1931*	1930†
Oklahoma	700	1,706	339	1,069	118	163	243	474	1,373,760	2,648,901	99,298,000	116,601,000
Kansas	244	494	110	222	61	45	73	227	90,585	115,832	19,041,000	21,246,000
Texas	2,645	3,370	1,662	1,798	137	226	846	1,346	8,102,659	1,037,445	148,952,000	149,112,000
Louisiana	265	502	78	187	49	108	138	207	45,762	74,309	11,867,000	10,787,000
Arkansas	60	96	27	64	8	5	25	27	2,621	2,784	8,434,000	10,100,000
Eastern States	1,628	3,544	463	2,034	719	811	446	699	20,413	48,144	19,608,000	24,918,000
Rock Mountain	133	200	79	106	27	27	27	67	61,333	15,270	17,441,000	13,961,000
California	213	506	185	461	.....	.....	28	45	212,330	409,004	95,652,000	118,403,000
United States	5,888	10,418	2,943	5,941	1,119	1,385	1,826	3,092	9,909,463	4,351,689	420,293,000	465,128,000

*Bureau of Mines Figures First 5 Months; A.P.I. Figures for June †Bureau of Mines.

Economical Production Limit 2,429,000 Barrels Daily

(*Continued from page 39*)

at refineries on June 30 amounted to about 39,211,000 barrels, against 50,254,000 barrels on the same date of last year. Table 4 shows how the gasoline situation for the first half of this year compared with that for the same period of last year.

Forecast for Last Half

A forecast of the probable demand for gasoline and crude oil for the balance of this year indicates that the demand for domestic crude will probably aggregate 464,000,000 barrels. This is based upon a probable demand for gasoline of 248,000,000 barrels and a net refinery production limit for gasoline of 220,000,000 barrels. In Table 5 are shown the facts upon which the demand for crude during the last half of this year is based.

COMPARISON OF GASOLINE SITUATION
(All Figures in Barrels)

SUPPLY	1931*	1930
Stocks Jan. 1	40,541,000	43,261,000
Production (6 mos.)	213,750,000	223,317,000
Imports (6 mos.)	7,270,000	8,158,000
Total Supply	261,561,000	274,736,000
DEMAND (6 Mos.)		
Domestic	196,520,000	190,217,000
Foreign	25,830,000	34,165,000
Total Demand	222,350,000	224,382,000
Stocks June 30	39,211,000	50,254,000

*June estimated. First Five Months figures from Bureau of Mines reports.

If United States refineries continue to exercise a reasonable degree of control over their operations during the last half of this year, the refinery demand for crude will not exceed 475,000,000 barrels. Of this total 34,000,000 barrels will probably consist of foreign oil and 441,000,000 barrels will be domestic crude. If foreign business is not further restricted during the last half of this year, probably 23,000,000 barrels of crude will be exported, which will create a total crude demand for this period of 464,000,000 barrels. Continued prevention of excessive production in most of the major producing areas now under proration in one form or another should necessitate a further draft on crude stocks of about 17,000,000 barrels. This would reduce the economic crude production limit to about 447,000,000 barrels, or a daily average of 2,429,000 barrels.

Publication of the economic survey just completed by the American Petroleum Institute, which appears in this issue, offers an interesting comparison with the figures presented herein. It will be noted that while there is a difference in the estimates of demand for the last six months of this year, the net conclusion as to daily average crude oil requirements is in practical agreement. For example, the American Petroleum Institute estimate of crude required shows that the daily average will amount to 2,393,000 barrels. On the basis of gasoline demand as forecast herein, it was concluded by the writer that the crude production limit for this period would be slightly higher; 2,429,000 barrels. It will be noted that the estimate of probable gasoline demand as shown herein is somewhat more optimistic than the estimate prepared by the American Petroleum Institute. In this instance, the conclusions reached by the writer are based upon actual results shown for the first six months of this year against the previous estimate for the entire year. In view of the fact that domestic gasoline consumption was considerably greater than the previous estimate during the first half of the year, almost offsetting the sharp decline in exports, it was assumed that equally good results would be realized during the last half of the year. After some paring of the former estimates of monthly export sales of gasoline

HIGHLIGHTS OF MAJOR FIELD ACTIVITIES, FIRST SIX MONTHS OF 1931 AND 1930

	Wells Completed		Oil Wells		Initial Production		Total Production	
	1931	1930	1931	1930	1931	1930	1931	1930
OKLAHOMA								
Oklahoma City	168	237	162	221	1,242,085	2,228,328	23,973,050	17,054,150
Seminole	58	349	33	267	81,365	317,555	2,434,400	3,947,650
KANSAS								
Voshell	84	107	49	76	75,560	89,229	3,210,900	2,089,100
Sedgewick	30	39	20	20	7,080	7,868	3,285,300	3,901,100
TEXAS								
East Texas	1,044	23	986	1	7,549,235	.....	30,642,050	.....
Van Zandt	70	40	62	40	311,100	160,850	6,763,650	2,717,600
Winkler Co.	3	3	2	3	64	1,090	8,565,000	14,859,300
Pecos Co.	23	95	19	89	3,430	74,590	15,363,000	23,587,650
Gulf Coast	297	558	164	369	99,285	227,365	28,028,950	32,758,402
NEW MEXICO								
Lea and Eddy Cos.	21	52	14	25	46,788	31,500	7,052,450	1,878,450
CALIFORNIA								
Kettleman Hills	8	5	8	5	74,100	14,976	5,889,400	2,529,400
Long Reach	47	90	47	90	17,015	84,910	15,997,000	18,449,100
Santa Fe Springs	5	217	5	217	1,725	211,027	12,833,600	26,086,400
Playa Del Rey	102	.....	102	.....	37,360	.....	5,587,600	.....

American Petroleum Institute Summary of Refinery Gasoline, Gas and Fuel Oil Demand, Supply and Stocks

Last Six Months 1930-1931 (Estimated)

(Bbls. of 42 Gals.)

REFINERY GASOLINE

Item	Detail	Last Six Months 1930 (Total)	Last Six Months 1931 (Est.) (Total)	Increase or Decrease (Total)	%
Demand	Domestic	203,400,000	215,000,000	+11,600,000	+ 5.7
	Export	29,100,000	26,200,000	- 2,900,000	-10.0
	Total Demand	232,500,000	241,200,000	+ 8,700,000	+ 3.7
Supply	From Straight-run	107,500,000	(a)110,684,000	+ 3,184,000	+ 3.0
	" Cracked	84,100,000	91,800,000	+ 7,700,000	+ 9.2
	" Natural	22,400,000	19,800,000	- 2,600,000	-11.6
	Total Output	214,000,000	222,284,000	+ 8,284,000	+ 3.9
	From Imports	8,800,000	6,600,000	- 2,200,000	-25.0
	" Stocks	9,700,000	12,316,000	+ 2,616,000	+27.0
	Total Supply	232,500,000	241,200,000	+ 8,700,000	+ 3.7
Stocks	July 1	50,200,000	42,600,000	- 7,600,000	-15.1
	October 1	38,200,000	27,184,000	-11,016,000	-28.8
	December 31	40,500,000	30,284,000	-10,216,000	-25.2
	Withdrawal 7/1-10/1	12,000,000	15,416,000	+ 3,416,000	+28.5
	Addition 10/1-12/31	2,300,000	3,100,000	+ 800,000	+34.8

GAS & FUEL OIL - EAST OF CALIFORNIA

(California not shown due to abundance of stocks)

Demand	Domestic	134,000,000	128,900,000	- 5,100,000	- 3.8
	Export	5,800,000	5,700,000	- 100,000	- 1.7
	Total Demand	139,800,000	134,600,000	- 5,200,000	- 3.7
Supply	From Refy. Output	124,800,000	(b)124,500,000	- 300,000	- 0.2
	" California	2,500,000	1,000,000	- 1,500,000	-60.0
	" Imports	13,000,000	10,600,000	- 2,400,000	-18.5
	Total Supply	140,300,000	136,100,000	- 4,200,000	- 3.0
	Oversupply	500,000	1,500,000	+ 1,000,000	
Stocks	July 1	32,300,000	33,500,000	+ 1,200,000	+ 3.7
	December 31	32,800,000	35,000,000	+ 2,200,000	+ 6.7
	Addition 7/1-12/31	500,000	1,500,000	+ 1,000,000	

CRUDE OIL

Demand	Runs to Stills:-				
	East of Calif.	380,300,000	385,800,000	+ 5,500,000	+ 1.6
	California	99,500,000	83,400,000	-16,100,000	-16.2
	Total Runs	449,800,000	439,200,000	-10,600,000	- 2.4
	Exports	11,600,000	12,300,000	+ 700,000	+ 6.0
	Used as such	16,400,000	15,000,000	- 1,400,000	- 8.5
	Total Demand	477,800,000	466,500,000	-11,300,000	- 2.4
Supply	From U.S.Production	430,200,000	(a)	) (	
	" Stocks	16,600,000)	440,300,000)	(- 6,500,000	- 1.5
	" Imports	31,000,000	26,200,000	- 4,800,000	-15.5
	Total Supply	477,800,000	466,500,000	-11,300,000	- 2.4
Stocks(c)	July 1	425,300,000	392,500,000	-32,800,000	- 7.7
	December 31	408,700,000	-	-	
	Withdrawal 7/1-12/31	16,600,000	-	-	

REQUIREMENTS OF DOMESTIC CRUDE OIL - BY MONTHS

Month	Total Barrels	Avg.Per Day	Month	Total Barrels	Avg.Per Day
July	74,600,000	2,407,000	October	74,100,000	2,390,000
August	74,600,000	2,407,000	November	71,400,000	2,380,000
September	72,200,000	2,407,000	December	73,400,000	2,368,000
	Total and Daily Average Last Six Months			440,300,000	2,393,000

NOTES: (a) Balance necessary
(b) Based on 35% recovery from 355,800,000 barrels of estimated crude runs.
(c) Excludes heavy crude and fuel in California.

ESTIMATES OF REFINERY GASOLINE, CRUDE RUNS AND YIELDS - BY DISTRICTS - LAST SIX MONTHS OF 1931

(Barrels of 42 U. S. Gallons) Page #2

Item	Detail	Year	East Coast	Appalachian	Indiana Illinois	Oklahoma Kansas	Inland Texas	Texas Gulf	Louisiana Gulf	North La. and Ark.	Rocky Mountain	California	Total All Districts
Demand	Domestic and Export	1931	42,735,000	8,200,000	35,650,000	34,250,000	17,350,000	40,825,000	11,965,000	4,700,000	7,500,000	38,025,000	241,200,000
Supply	From Straight Run	1931	14,307,000	3,555,000	14,242,000	18,482,000	10,511,000	15,775,000	6,002,000	2,200,000	3,087,000	22,523,000	110,684,000
	" Cracked	1931	19,000,000	3,500,000	18,000,000	11,500,000	4,000,000	19,600,000	4,200,000	1,700,000	2,900,000	7,400,000	91,800,000
	" Natural	1931	750,000	310,000	1,630,000	2,600,000	2,050,000	1,500,000	1,440,000	800,000	820,200	5,900,000	19,800,000
	Total Refy.Output	1931	34,057,000	7,365,000	33,872,000	32,582,000	16,561,000	38,875,000	11,642,000	4,700,000	6,807,000	35,823,000	222,284,000
	From Stocks	1931	2,318,000	835,000	1,778,000	1,668,000	789,000	1,950,000	83,000	-	693,000	2,202,000	12,316,000
	" Imports	1931	6,360,000	-	-	-	-	-	240,000	-	-	-	6,600,000
	Total Supply	1931	42,735,000	8,200,000	35,650,000	34,250,000	17,350,000	40,825,000	11,965,000	4,700,000	7,500,000	38,025,000	241,200,000
Stocks	July 1	1931	7,550,000	1,825,000	6,150,000	3,800,000	1,700,000	5,850,000	1,325,000	150,000	2,000,000	12,250,000	42,600,000
	October 1	1931	4,696,000	888,000	3,925,000	1,914,000	818,000	3,501,000	1,115,000	135,000	1,173,000	9,019,000	27,184,000
	December 31	1931	5,232,000	990,000	4,372,000	2,132,000	911,000	3,900,000	1,242,000	150,000	1,307,000	10,048,000	30,284,000
	Withdrawal 7/1-10/1		2,854,000	937,000	2,225,000	1,886,000	882,000	2,349,000	210,000	15,000	827,000	3,231,000	15,416,000
	Addition 10/1-12/31		536,000	102,000	447,000	218,000	93,000	399,000	127,000	15,000	134,000	1,029,000	3,100,000
Memos	*Crude Runs - Total	1931	84,200,000	13,200,000	44,500,000	57,000,000	31,800,000	75,100,000	28,900,000	9,200,000	11,900,000	83,400,000	439,200,000
	" " Per Day	1931	457,000	72,000	242,000	310,000	173,000	408,000	157,000	50,000	65,000	453,000	2,387,000
Yields From Crude	Straight Run %	1931	17.0	27.0	32.0	32.4	33.0	21.0	20.8	23.8	26.0	27.0	25.2
	Cracked %	1931	22.6	26.5	40.4	20.2	12.6	26.1	14.5	18.5	24.4	8.9	20.9

* Amount necessary to produce Straight Run Gasoline required.

ESTIMATED SHIPMENTS OF GASOLINE FROM REFINERIES BY DISTRICTS BY MONTHS

LAST SIX MONTHS 1931

(Barrels of 42 U. S. Gallons) Page #3

Month	Year	East Coast	Appalachian	Indiana Illinois	Oklahoma Kansas	Inland Texas	Texas Gulf	Louisiana Gulf	North La. and Ark.	Rocky Mountain	California	Total All Districts Monthly	Total All Districts Daily
July	1931	6,861,000	1,493,000	6,627,000	6,500,000	2,895,000	6,931,000	2,285,000	793,000	1,430,000	6,985,000	42,800,000	1,380,600
August	1931	6,575,000	1,566,000	6,698,000	6,502,000	3,120,000	7,502,000	2,156,000	765,000	1,624,000	6,592,000	43,100,000	1,390,300
September	1931	6,171,000	1,382,000	6,156,000	6,057,000	2,943,000	7,256,000	1,882,000	807,000	1,409,000	6,337,000	40,400,000	1,346,700
October	1931	5,687,000	1,393,000	5,833,000	5,468,000	2,902,000	6,469,000	1,949,000	769,000	1,268,000	6,062,000	37,800,000	1,219,400
November	1931	5,462,000	1,248,000	5,249,000	4,981,000	2,638,000	6,292,000	1,751,000	794,000	971,000	6,014,000	35,400,000	1,180,000
December	1931	5,619,000	1,118,000	5,087,000	4,742,000	2,852,000	6,375,000	1,702,000	772,000	798,000	6,035,000	35,100,000	1,132,300
Total		36,375,000	8,200,000	35,650,000	34,250,000	17,350,000	40,825,000	11,725,000	4,700,000	7,500,000	38,025,000	234,600,000	
Daily Average		197,700	44,600	193,700	186,100	94,300	221,900	63,700	25,500	40,800	206,700	1,275,000	

* ESTIMATED TOTAL REFINERY OUTPUT OF GASOLINE BY DISTRICTS BY MONTHS

July	1931	5,806,000	1,147,000	5,804,000	5,803,000	2,569,000	6,062,000	2,207,000	787,000	1,125,000	5,790,000	37,100,000	1,196,800
August	1931	5,520,000	1,220,000	5,875,000	5,805,000	2,794,000	6,633,000	2,078,000	759,000	1,319,000	5,397,000	37,400,000	1,206,500
September	1931	5,427,000	1,137,000	5,577,000	5,565,000	2,713,000	6,645,000	1,828,000	804,000	1,192,000	5,496,000	36,384,000	1,212,800
October	1931	5,687,000	1,393,000	5,833,000	5,468,000	2,902,000	6,469,000	1,949,000	769,000	1,268,000	6,062,000	37,800,000	1,219,400
November	1931	5,635,000	1,281,000	5,393,000	5,051,000	2,668,000	6,421,000	1,792,000	799,000	1,014,000	6,146,000	36,400,000	1,213,300
December	1931	5,982,000	1,187,000	5,390,000	4,830,000	2,915,000	6,645,000	1,788,000	782,000	883,000	6,732,000	37,200,000	1,200,000
Total		34,057,000	7,365,000	33,872,000	32,582,000	16,561,000	38,875,000	11,642,000	4,700,000	6,807,000	35,823,000	222,284,000	
Daily Average		185,100	40,000	184,100	177,100	90,000	211,300	63,300	25,500	37,000	194,700	1,208,100	

* Based upon reducing stocks to working stocks of 27,184,000 barrels 9/30/31 and economic stock of 30,284,000 barrels Jan. 1, 1932.

ESTIMATED ECONOMIC STOCKS OF REFINERY GASOLINE BY DISTRICTS BY MONTHS

June 30	1931	7,550,000	1,825,000	6,150,000	3,800,000	1,700,000	5,850,000	1,325,000	150,000	2,000,000	X12,250,000	42,600,000
July 31	1931	6,495,000	1,479,000	5,327,000	3,103,000	1,374,000	4,981,000	1,247,000	144,000	1,695,000	X11,055,000	36,900,000
August 31	1931	5,440,000	1,133,000	4,504,000	2,406,000	1,048,000	4,112,000	1,169,000	138,000	1,390,000	X 9,860,000	31,200,000
#September 30	1931	4,696,000	888,000	3,925,000	1,914,000	818,000	3,501,000	1,115,000	135,000	1,173,000	X 9,019,000	27,184,000
October 31	1931	4,696,000	888,000	3,925,000	1,914,000	818,000	3,501,000	1,115,000	135,000	1,173,000	X 9,019,000	27,184,000
November 30	1931	4,869,000	921,000	4,069,000	1,984,000	848,000	3,630,000	1,156,000	140,000	1,216,000	X 9,351,000	28,184,000
December 31	1931	5,232,000	990,000	4,372,000	2,132,000	911,000	3,900,000	1,242,000	150,000	1,307,000	X10,048,000	30,284,000

Represents working stocks. X Includes all Stocks, Refinery, Terminal, Sales Stations, etc.

for the last half of this year and allowing for a further normal increase in domestic consumption, it was concluded that the total gasoline demand for the last half of this year would probably amount to 248,000,000 barrels, or about 7,000,000 barrels more than was estimated by the American Petroleum Institute. This basis of figuring resulted in a somewhat higher rate of crude consumption by refineries, although the difference is really negligible when considered on a daily average basis.

It seems to be the unanimous opinion that it will be necessary for all branches of the industry to continue efforts in the direction of production control. What has been accomplished during the first half of this year offers sufficient evidence of the advisability of maintaining a watchful eye over the supply of crude and products. If producers and refiners follow out the recommendations offered by the figures presented here and in the report of the American Petroleum Institute—figures that seem to offer unanimity, though prepared independently of each other—there is every reason to believe that many present difficulties will have been eliminated. Although there has been material statistical improvement during the first half of this year, the facts at hand carry a note of caution against laxity of control over the supply. Only by maintaining crude production and refinery operations in conformity with the course dictated by the demand can the industry expect to emerge successfully from the depression.

Test Southwest of Zwolle Southeast Field Promising

Shreveport.—Loring Oil Company's Bowman-Hicks 17, 1600 feet south and 275 feet west of northeast corner, Section 17-6-12, Sabine Parish, 1½ miles southwest of production in the Zwolle southeast field, blew oil over the top of the 122-foot derrick when a drill stem test with a six-inch tester was made in the well Sunday, July 26, at 2506 feet. The tester was set at the top of the Zwolle chalk which was topped at 2535 feet, after Zwolle marl had been topped at 2525 feet. Either 9⅝-inch or 10-inch casing will be set and the well bailed at present depth.

This test had been intended as a 6000-foot test, the first of that depth for Zwolle. However, if the well will make a large producer in the chalk it will not be taken to the lower level, owners said.

This test is 1½ miles southwest of H. W. Perritt's Boring 1, in Section 11-7-12, the nearest producer, and is three miles almost due south of R. L. Gay, Trustee's, Bowman-Hicks A-1, Section 34-8-12, the discovery well of the Zwolle east field.

Location Announced for Second Test of Greasewood Dome Area

Denver, Colo.—The announcement of location for Reiter-Foster Oil Company's second test to be drilled on the Greasewood dome, in Weld County, was made this week. The well is on the Sarah Johnson and Peter C. Juhl tract, a half mile west of Continental Oil Company's first location, Briggs 1, and northwest of Reiter-Foster's test on the Ida Johnson property. Test is to be started immediately. The company's Ida Johnson well, which was delayed because of having lost circulation and filled the hole with cement, is cleaning out and making good progress.

The discovery well on Greasewood dome, which was the cause of the interest now being manifest in Northeastern Colorado, was drilled by Platte Valley Petroleum Corporation. It was completed last October, and has been producing steadily since then, on an average of about 325 to 350 barrels per day.

Geology and Economic Importance Of the East Texas Field

(*Continued from page* 50)

of 2,475,000,000 barrels. The most conservative estimate would not fall under 1,500,000,000 with the possibility of 3,000,000,000 barrels.

In terms of daily production the pool can and perhaps will average 500,000 barrels per day for the next two to three years after which it could produce 300,000 per day for 15 years or 500,000 barrels per day for 12 years before exhaustion.

Economic Considerations

The effect upon price structure of such an enormous amount of oil in sight will be far reaching and of long duration, while the present depressed crude market is an extreme example of the effect on crude price this pool will have, it is just the beginning of a much longer period of a depressed market. The pool will be the controlling factor in price structure over the entire United States. What the price of crude will be in a year from now no one can say, but some of the factors which will directly affect it are, first: the amount of oil the pool will produce by flowing wells; second, the rate of the salt water encroachment; and third, the rate at which the pool will be drilled.

The hazard of rapid salt water encroachment is no greater in this field than many others. Considering the number of wells drilled and the great number of operators in the field the salt water problem has been very small. Proper drilling of the wells will insure against rapid encroachment of water, hence this factor will affect the price of crude very little.

Conclusions

The East Texas oil field is the largest in area of any field yet discovered in the world. Its proven area is approximately 120,000 acres with the probability of covering 125,000 acres. Its per acre yield will be between 15,000 (the most conservative estimate) and 35,000 barrels (a more liberal estimate). The total recovery estimate is surely 1,500,000,000 barrels, probably 2,500,000,000 barrels and possibly 3,500,000,000 barrels. The East Texas pool will be the dominating factor in oil price structure for a minimum of three years, and perhaps 10 years. The pool will likely be producing 500,000 barrels per day in 90 days and have approximately 2000 wells completed with a potential of 2,000,000 barrels per day. To date there are 1350 wells completed and 450 locations and drilling wells. At the present rate of drilling (200 per month) it will require four to five years to drill up the proven area.

East Texas Refineries Completed

Owner—	Daily Capacity	Current Operations in Bbls.	Plant Location	Railroad Connection
Arrow Refining Co.	2,500	800	Overton	I-GN
Beacon Oil & Ref. Co.	2,500	2,000	NW Henderson	I-GN
Boone Refining Co.	500	350	Arp	None
Central Refining Co.	10,000	...	Friar	I-GN
East Texas Ref. Co.	12,000	11,000	Lonview Junc't	Santa Fe
East Texas Ref Co.	6000	4,150	Friar	I-GN
Kilgore Ref. Co.	1,500	...	Kilgore	I-GN
Overton Refining Co.	3,500	2,150	Overton	I-GN
Rusk Refining Company	3,000	...	Overton	I-GN
Slack Petroleum Co.	2,500	1,500	Camps	T&P
Taylor Refining Co.	15,000	10,150	Tyler	Cotton Belt
PLANTS BUILDING				
Constantine Refining Co.	2,500	...	Overton	I-GN
Danciger O&R Co. (Bell)	10,000	...	Longview	I-GN
Sinclair Refining Co.	5,000	...	Gladewater	I-GN

News From California Fields

BRAD MILLS, ***Staff Representative, Los Angeles, California***

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Playa del Rey Field Inactive With But Four Wells Drilling

Los Angeles.—With only four active drilling wells, the Playa del Rey field has slipped distinctly into the inactive class from one of the sensations of a year ago. Perhaps there never was an excuse for developing this field, but the fact that it was developed under adverse conditions proves the theory that additional oil where there is overproduction can lead only to trouble.

Dozens of small operators are in the hands of receivers, even where production was obtained. A blanket, or cooperative receivership, may be arranged, with small operators, the Superior Court, the oil umpire and supply companies parties to the agreement. Supply companies lost heavily through credit extended to companies with limited capital. They are now trying to get what they can from the sale of oil.

Ohio Oil Company re-completed No. 1-2 at 6342 feet with an initial production of 1600 barrels. This unusual producer was carried to the schist and is now producing more than 1400 barrels of oil. The original producing depth was 5733 feet.

Continental to Deepen Test To Temblor at North Belridge

Bakersfield, Calif.—Continental Oil Company is not satisfied with the showing of Result 2, a Temblor test in the North Belridge field, and will deepen the well from 5253 feet. Production was above 200 barrels of clean oil, but this was so far below the indicated output that more formation will be included.

Belridge Oil Company is producing more than 8600 barrels from its two wells, the discovery well and a second producer which was completed two weeks ago with an initial flow of 4600 barrels The original completion has shown a remarkably steady flow for nearly one year, following a gradual climb from 2800 barrels to 4700 barrels. Gas production has dropped steadily to give the well an excellent gas-oil ratio.

Associated Oil Company has further reduced the flow in Reward 4, the company's first producer in the deep zone, the present output being only 1500 barrels of 40.8 gravity oil. The initial production of this well was nearly 9000 barrels of clean oil.

The Temblor formation in this field already has an enviable record for producing clean oil, none of the wells having shown more than a negligible quantity of water.

Production May Be Developed At 6000 Feet at Lost Hills

Bakersfield, Calif.—Recent developments in the Lost Hills field indicate that production tests in the few wells drilled to deeper zones have been made far above the true Temblor formation and that it may yet be possible to develop commercial wells at greater depth on this promising structure. A careful check by at least one paleontologist shows the deepest wells to be floundering around in a formation which corresponds to the brown shale found around 5500 feet at Kettleman Hills. If this proves to be true conclusion, production may be developed around 6000 feet at Lost Hills, and some of the wells now testing far above this level may eventually make producers.

The deposits are very thick in this part of the valley and the field has many advantages enjoyed by both Kettleman Hills and North Belridge. The structure bears evidence of production in the Temblor, and examination of cores shows a condition which prevails far above the producing formation at Kettleman Hills.

George F. Getty, Inc., has suspended operations in Lincoln 1 at 4650 feet, pending developments in other wells. This well was tested at various levels, but failed to show more than water and gas. The general theory now is that this well will have to be drilled to around 6000 feet to find the Temblor formation.

General Petroleum Corporation will drill deeper in Lost Hills 1301, which was drilled to 3655 feet before a string of 11¾-inch casing was cemented at 3650 feet. This well is favorably located and should prove a representative test.

Bakersfield, Calif.—Graham Loftus Oil Company will drill a well on the northwest quarter of Section 20-27-22, about midway between the Lost Hills and Buttonwillow fields. Union Oil Company drilled a well to 3010 feet on the same section, but this was not considered a representative test. Shell Oil Company's Williams 1 is located about seven and one-half miles east and slightly north of the new location, while several gas wells have been completed a few miles to the southwest. The district might be termed an intermediate sector between gas and oil areas.

Latest Kettleman Well Is Field's Largest Completion

Coalinga, Calif.—Standard Oil Company of California maintained the fast pace it has set on the North Dome at Kettleman Hills by completing No. 34-29J as perhaps the largest well yet finished in the field. This new producer was not tested for a full 24 hours, but production was above 20,000 barrels in 17 hours. The well was beaned back to produce only a fraction of its initial yield. Completion of No. 34-29J was a very important development of the week, since it is located much farther down on the northwest plunge than any previous producer.

The location is one-half mile west of Superior Oil Company's Huffman 1 and about three-eighths of a mile northwest of Union Oil Company's Amerada-King 1. The well was completed at 8472 feet and is flowing from about the same formation as the indirect offsets. A string of 9⅝-inch casing was cemented over the Temblor at 7107 feet, but the upper part of the gas zone was shut off with a combination string. A flow string was hung at 7047 feet. The well cleaned itself in a few hours and increased its flow steadily before smaller beans were installed.

Such a large completion on the extreme northwest plunge

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OKLAHOMA
PIPE LINE
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Transporters of
Crude Petroleum

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MUSKOGEE, OKLAHOMA

points to a remarkable recovery from a sector which was first held in doubt by all companies. Even surface indications show this group of wells to be dangerously near the edge of the field. The deeper formations do not plunge so sharply, however, and commercial production may be developed a good distance northwest of present limits.

The oil from No. 34-29J is 35.6 gravity and shows a negligible cut. The open gas flow was estimated at 50,000,000 cubic feet, but production is much smaller with the reduced flow arrangement. The well started flowing through three large beans and established a record for the field in short order. Present flow beans include two 34/64-inch beans. The rate of flow for the greater part of the first 24-hour period was 29,000 barrels. This was several thousand barrels more than the best previous completion. The well offsets three large completions but evidently was not affected by several months' production from previous completions.

North American Consolidated Oil Company has not found the Bentonite marker at 8482 feet in Blauvelt 1, an outpost test, and may not reach the Temblor above 8600 feet. The hole has not been reamed for running a string of casing. If this well carries as much producing formation as the average of recent completions, it will be drilled to around 9500 feet. Blauvelt 1 is located on Section 36-21-17 and is about five-eighths of a mile east of Shell Oil Company's Dixon 1, which was recently completed at 8807 feet with an initial production of 6000 barrels. If the Temblor zone produces in this well, the field should approximate the maximum producing limits established a year ago.

Kettleman North Dome Association has completed Getty 8-6Q with an initial production above 9000 barrels from 8026 feet. Like most of the recent wells, the new producer is flowing clean oil. Four 60/64-inch beans were used to establish its initial rate.

Associated Oil Company is drilling at 8715 feet in Whepley 2, but will not drill much deeper before making final preparations to complete. This well encountered the Temblor at 7110 feet and has cut a remarkable thickness of oil sand. A combination string will be run to shut off the upper gas zone. Whepley 1 was a good producer and one of the first to include a part of the lower Temblor formation.

Petroleum Securities Company is testing the water shutoff in Burbank 1, deepest active test on the Middle Dome, and expects to drill into the Temblor to a safe distance. The well flowed salt water and may be recemented. The test was drilled to 7330 feet and a string of 8⅝-inch casing cemented at 7326 feet. This is perhaps the most important well on either dome and the outcome of a production test in the Temblor will largely determine the amount of activity recorded during the latter part of the year. Standard Oil Company is offsetting Burbank 1 with No. 6-29V, but has shut down the well until after the preliminary test in Burbank 1. Other operators on the Middle Dome will start wells if production is developed. Bolsa Chica Oil Corporation and Superior Oil Company will operate jointly on the Middle Dome.

There are now 20 producing wells in the field, with three shut in. This does not include those shut down over the Temblor zone. Average initial production has been unusually high, while the average present production per well is far above any other field in the United States. Many wells are producing only a fraction of their potential output. Drilling wells total 16, but completions are gradually reducing this figure. Efforts to curtail field work have been partially successful and an extensive drilling campaign is not expected until after the end of the year.

Superior May Re-Drill Test Off Coal Oil Point

Santa Barbara, Calif.—Superior Oil Company is considering re-drilling of Bolsa Chica Oil Corporation's Permit 191-1, an ocean test off Coal Oil Point, which fell just short of commercial production on a test several months ago. This well was drilled to 4191 feet and plugged back to test a promising body of sand. A string of casing was cemented at 4000 feet but the company apparently made the mistake of including too much formation below the shutoff.

On the first test, the well flowed 100 barrels of oil and about 1000 barrels of water. Subsequent mechanical changes failed to improve the quality of production and the test was shut down.

Plugs were placed at various levels in an effort to shut off bottom water. The first 50 feet cored below the last shutoff showed good oil sand. Streaks of questionable sand were cored, with this doubtful formation showing less promise as drilling progressed.

The Coal Oil Point structure lies almost, if not entirely, under water and outside the mean high tide line of the Pacific Ocean. There are now indications that the well is located on the edge of the structure. A high gas pressure was developed and the chances of opening up a new field are still considered good.

Huntington Beach's Deep Test Proves Disappointing

Los Angeles.—The production test in W. E. McCaslin's Transport 1, deepest test in the Huntington Beach field, proved disappointing. Swabbing failed to make the well flow and only a small amount of light oil was recovered. The hole was swabbed to 5500 feet and allowed to stand nearly 12 hours. The fluid level rose to 4000 feet and oil was found on top, but the well failed to follow up by flowing. The swab was lost but recovered.

The theory that the bottom of the hole is filled with mud suffered a blow when a sinker bar was run to bottom. There is still a chance, however, that the well should be washed before continuing the test. The hole is very small and the company is handicapped mechanically. A good body of oil sand and shale was cut below the final shutoff, but there was also some questionable streaks included. The 4¾-inch casing cemented around 6900 feet so reduced the size of the hole and both drilling and swabbing were made difficult. Total depth of the well is 8365 feet.

Superior Oil Company is active in one deep test and is considering a resumption of operations in two other wells. This company is favorably situated for development of deep production, should it, or another company, complete a producing well. Gillette 7-2 is drilling below 7500 feet in sand and shale. Fee 1 is shut down at 7491 feet with a string of 4½-inch casing landed one foot off bottom. It is understood that this company is considering the erection of a refinery to handle its own production, should a deeper producing zone be found.

Ventura, Calif.—The new deep zone discovered last spring by Associated Oil Company will be tested by other companies in the Ventura Avenue field. Bolsa Chica Oil Corporation, through Superior Oil Company, will drill a well to the "57" zone, and Pacific Western Oil Company may continue its Orton 7 to 8500 feet, or deeper. Associated Oil Company's Lloyd 57 was completed at 8823 feet, but much of the best oil zone was cored between 8200 feet and 8500 feet. The well stopped in rich oil sand which may continue to much greater depths.

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Mid-Continent Petroleum Safety Council

(This space contributed by an oil company)

INTERNATIONAL PETROLEUM
IN REVIEW

Digboi Camp of Assam Oil Company, Upper Assam, India

Japanese Producers Increase Output Japanese oil production totalled 166,111 barrels during April, 1931, according to latest reports available in the United States. This compares with an average of 152,905 barrels per month during the calendar year 1930.

American Exports Off In Volume and Value American exports of crude declined by 42 per cent in oil and refined products value during the first five months of 1931 as compared to the similar period of 1930, according to official statistics of the Bureau of Foreign and Domestic Commerce. Export sales declined also in volume, but to less extent than in value, as is shown by the following figures:

	First five months ending May			
	1930		1931	
	Barrels	Value	Barrels	Value
Crude Pet.	9,584,782	$12,729,777	9,308,274	$8,884,071
Refined Oils	52,239,962	195,897,738	39,665,493	109,603,288

The declared value of refined oil exports averaged $2.99 per barrel during the latter period, as compared to an average of $3.75 per barrel during 1930. Similarly, the average value of crude oils imported fell from $1.24 to 95 cents per barrel.

Meanwhile, American imports likewise declined as follows:

This decline occurred, as will be noted, chiefly in the importation of Venezuelan oils, direct and by trans-shipment from the Dutch West Indies. Mexico, Colombia, and Trinidad registered slight increases in their sales to American refiners and distributors.

French Continue Search For Petroleum Substitute Paris, France.—At the early meetings of the Carburant Congress at the Colonial Exposition at Vincennes, it was decided that charcoal, peanut oil, and oil from bananas and palms may one day profitably replace gasoline. The high price of gasoline in most of the French colonial empire makes it particularly desirable to find a substitute, and one that will use some of the local products. Colonial forests are immense and several companies have already obtained all their motive power by gasoline from charcoal, particularly in Equatorial Africa.

Oleaginous plants furnish oils which appear to possess calorific qualities equal to mineral oils and higher than those found in alcohol. Palm and peanut oil are said to contain as much energy as gasoline and are much cheaper in some French areas.

An important question at present is the construction of motors capable of working with oleaginous carburants. Government investigation of this problem is under consideration.

Crude petroleum	Bbl.	4,984,129	5,508,689	4,512,194	3,859,857	25,362,763	27,086,560	21,530,785	20,868,603
Mexico	Bbl.	817,000	659,288	1,085,500	788,357	2,787,009	2,353,067	2,865,285	2,159,335
Netherland West Indies	Bbl.	738,067	589,988	219,966	184,267	4,531,011	3,453,890	1,243,360	973,416
Colombia	Bbl.	1,002,000	1,420,840	1,088,000	957,440	6,020,000	8,555,145	6,280,000	7,168,240
Peru	Bbl.	332,000	747,000	.....	.....	710,000	1,593,000	224,541	490,927
Venezuela	Bbl.	1,985,662	1,937,871	2,056,377	1,842,499	10,814,548	10,458,731	10,363,212	9,410,845
Other countries	Bbl.	109,400	153,702	62,351	87,292	498,195	672,727	554,387	665,840
Advanced and refined oils	Bbl.	3,589,070	7,398,697	2,841,972	4,370,816	17,507,843	30,795,443	16,845,229	24,666,029
Topped, including fuel oil	Bbl.	1,809,684	1,362,592	1,788,037	1,191,271	10,810,031	7,622,051	10,754,944	7,235,279
Mexico	Bbl.	98,914	56,539	87,372	50,946	376,818	237,129	621,622	341,914
Netherland West Indies	Bbl.	1,686,018	1,261,085	1,679,794	1,104,183	10,371,753	7,284,566	10,004,473	6,726,333
Other countries	Bbl.	24,752	44,968	20,871	36,142	61,460	100,356	128,849	167,032
Tops, and other unfinished distillates	Bbl.	4,080	17,397	714	3,240	141,026	160,802	2,916	12,754
Gasoline, naphtha, and other finished light products	Bbl.	1,767,546	5,968,304	1,049,588	3,111,265	6,487,408	22,643,666	6,068,291	17,142,453
Trinidad and Tobago	Bbl.	68,026	250,182	69,802	134,262	499,910	1,845,254	505,395	1,030,787
Netherland West Indies	Bbl.	1,689,113	5,644,013	924,777	2,543,742	5,950,682	20,535,376	5,488,474	15,529,556
Other countries	Bbl.	10,407	74,109	55,009	433,261	36,816	263,036	74,422	582,110
Illuminating oil (kerosene)	Bbl.	5,774	14,987	238	1,660	58,376	181,069	5,123	37,241
Lubricating oil, including paraffin oil	Bbl.	1,986	35,417	3,395	63,380	11,002	187,855	13,955	243,302
Paraffin and paraffin wax	Lb.	3,726,056	170,173	1,393,559	52,581	14,457,478	715,640	12,205,531	507,841

Completions for Past Week in U. S. Fields

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For Tabulation and Comparison See Market Section

CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
LONG BEACH—		
Cooperative Pet. Co. No. 1	100	3080
Shell Oil Co., Nesa 12	500	6160
NORTH BELRIDGE—		
Belridge Oil Co., No. 35-8, 35-27-20	4500	5416
VENTURA AVENUE—		
Associated Oil Co., V. L. W. 4	250	7032

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
ELLSWORTH COUNTY—		
Palmer and Gypsy Oil, Stottenberg 1, c sw 22-16-10w (1st hr)	2040	3333
Hinkle and Cress, Schaltz 1, c ne 9-14-8w	*	3468
FRANKLIN COUNTY—		
Hayhurst and Smith, Robbins 1, se c sw 9-16-18e	*	1149
GREENWOOD COUNTY—		
Harwood Oil Co. et al, Beal 1, ne c se 28-23-11e	250	1925
LYON COUNTY—		
Sheedy et al, Bush 1, c w½ se 10-20-11e	*	2450
McPHERSON COUNTY—		
Reynolds, Unruh and Shell, Koehn 1, se nw sw 36-19-2w	410	3390
Lario Oil & Gas et al, Miller 1 ne c se 24-19-2w	3250	3394
McPherson Oil & Gas Dev. & Shell, Salthouse 2, c ne se 15-19-2w	25	2913
McPherson O&G & Shell, Griffin 2, c sw nw 14-19-2w	620	2899
RICE COUNTY—		
Solar Oil Co., Zink 1, se c nw 3-19-10w	*	3358

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
CARTER COUNTY—		
K D Oil Co., Burton 1, c sw nw 30-1s-2w	240	2178
CREEK COUNTY—		
Magnolia Pet. Co., Boone 8, (owd) se c nw sw se 34-17-7e	110	2963
McCurry et al, Folsom 2, cnl sw se 32-17-11e	*	680
Elm Oil Co., Sancho 1, sw c ne 15-19-7e	*	2895
LINCOLN COUNTY—		
Thomas B. Slick Estate, Fee 4, ne se sw 7-14-4e	2550	4970
OKLAHOMA COUNTY—		
Champlin O&R, Schilling 1, nw c se sw 10-11-3w	1800	6395
Champlin O&R, Eckroat 1, nw c se nw 10-11-3w	47,000	6350
Danciger O&R, Burroughs 1, se c sw 10-11-3w	36,675	6405
Slick Estate and Atkinson, Key 1, nw se sw 2-11-3w	525	6230
Rajah Inc., Davis 1, nw c sw nw nw 2-11-3w	8705	6230
Wilcox, Jamison and Grimes, Fee 1, nw c sw se 23-12-3w	8730	6339
OKMULGEE COUNTY—		
W. L. Varner, Butler 2, c ne se 16-12-14e	¶¼	652
Mack Drlg. Co., Peterson 1, sw c se sw 30-13-14e	*	1910
Shamblin and Smith, Sharp 1, sw c se 31-16-12e	*	2698

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
BRADFORD FIELD—		
Brink & Lincoln, Fee 45	2	....
Healey Petroleum Corp., Quintruple 1	2	....
Margaret Cort, Cort 68	pressure	....
B. L. Brinton, Quintruple 1	2	....
E. C. Tanner, Quintruple 1	2	....
T. P. Thompson Jr. Borden 45	pres.	....
TIOGA-WAYNE COUNTIES—		
Eastern States Natural Gas Co., Brown 1	¶2	....
Cunningham Oil & Gas Co., Finger Lakes Co 1	*	....
Cunningham Oil & Gas Co., Carlson 1	¶2	....
Cunningham Oil & Gas Co., Gleason	2½	....
Penn-United Gas Co., Wheeler 1	*	....
Penn-United Gas Co., Tremaine 2	*	....
Lycoming Natural Gas Co., Murphy 1, 2,	*	....
Lycoming Natural Gas Co., Tremaine 2	*	....
Pennsylvania Power & Light Co., Burdette 1	¶2¼	....
Belmont Quadrangle Co., Gardner 1	¶2¼	....
Belmont Quandrangle Co., Gardner 1	2¾	....
Tri-State Oil & Gas Co., M. E. Church lot 1	¶2½	....
Tri-State Oil & Gas Co., Daboll 1	¶2	....
Pentoga-DeGolier Co., Earnest 1	¶2	....
Pentoga-DeGolier Co., Burnett 1	¶2¼	....
Penn City Oil & Gas Co., Allen 1	¶3	....
Bigelow Gas Co., Bigelow 1	¶2	....
CLARION-VENANGO—		
S. N. Moyer, Moyer 32	2	....
United Natural Gas Co., Kline 4004	¶½	....
Robert McCalmont, McCalmont 1	2	....
C. A. Frank, Frank 23	2	....
Claude A. Frank, Franks 9	2	....
GREENE COUNTY—		
Convex Glass Co., Van Vorheis 1	*	....
Manufacturers Light & Heat Co., Bell 3443	1¼	....
Green County Commissioners, County Home 1	¶1	....
CENTER-MIDDLE FIELD—		
Yerdon & Co., Kapp 2	7	....
G. L. Rhodes & Co., Emerson 1	3	....
BUTLER COUNTY—		
George Levier, Fee 2	¶¼	....
Humes & Co., Humes 1	*	....
WASHINGTON COUNTY—		
Natural Gas Co. of W. Va., Post 703	*	....

NEW YORK

Company, Well and Location	Initial Production Bbls.	Depth
ALLEGANY COUNTY—		
Ryder-Richmond Oil Corp., Fee 3	3	....

WEST VIRGINIA

Company, Well and Location	Initial Production Bbls.	Depth
CALHOUN COUNTY—		
Creed Barker & Co., Methodist Parsonage 1	¶½	2270
L. P. Bickel, Stump Hrs. 1	¶¼	....
MARION COUNTY—		
Monroe & Laughlin, Dye 1	¶1	2507
RALEIGH COUNTY—		
Godfrey L. Cabot, Beaver Coal 5	¶¾	2900
WETZEL COUNTY—		
Manufacturers Light & Heat Co. Newton Hrs. 1	*	....

SOUTHEASTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
MONROE COUNTY—		
Ed. Cunningham & Co., Crum 6	10	1333
Bert Robinson, Blair 1	¶¼	1540
Green & Co., Hogue 10	2	1232

CENTRAL OHIO

Company, Well and Location	Initial Production Bbls.	Depth
ATHENS COUNTY—		
Ross & Yoeman, Winner 1	*	890
Frank O'Mara & Co., Hocking-Athens Coal 12	5	3213
BELMONT COUNTY—		
A. J. West, Rossiter 3	¶¼	1622
FAIRFIELD COUNTY—		
City Natural Gas Works, Fleming 1	¶¼	577
Tipple 2	¶¼	544
GUERNSEY COUNTY—		
Ohio Fuel Gas Co., Mason 1	¶¼	3447
LORAIN COUNTY—		
Dillon & McFredericks Mills 3	¶3¼	2680
MEIGS COUNTY—		
Talbott & Co., Talbott 1	¾	720
MEDINA COUNTY—		
Edson Sons Co., Packard 6	10	386
Frank 21	*	500
HOCKING COUNTY—		
Ohio Fuel Gas Co., Oldfield 1	¶¾	2596
PERRY COUNTY—		
Wehrle Oil & Gas Co., Wolfe 1	*	3297
PICKAWAY COUNTY—		
National Geophysical Survey Co., Vance 1	*	2580
STARK COUNTY—		
Brendall & Co., Williman 1	¶4½	4419
Lesser 1	¶2½	4188

NORTHWESTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
WYANDOT COUNTY—		
Jones & Coyle, Criswell 1	¶¼	....
Newcomer & Co., Neale 1	¶¼	1337
McKinney & Drickler, Ransberg 1	¶½	....

KENTUCKY

Company, Well and Location	Initial Production Bbls.	Depth
DAVIESS COUNTY—		
A. S. Tanner, Lick Branch 1	75	136
R. W. McMahan, Jones 1	200	....
S. A. Cobb & Co., Howard 1	12	....
OHIO COUNTY—		
Harry Russell & Co., Farmer 4	*	650
PERRY COUNTY—		
Unknown Parties, Town Hazard 1	¶¼	600
WEBSTER COUNTY—		
Craig & Lowrie, Rideout 1	¶3½	483
Unknown Parties, Jenkins 1	¶2	612

TEXAS PANHANDLE

Company, Well and Location	Initial Production Bbls.	Depth
CARSON COUNTY—		
Interstate Pord. Co., C. S. Seiber 1	¶11	3000
GRAY COUNTY—		
Kewanee O&G Co., Morse 7-B	350	2666
Morse 2-B, Sec. 17	350	2756
Operators Ro. & Prod. Co., Vaniman 2	¶6-30	3240
HUTCHINSON COUNTY—		
Stanolind O&G Co., Ware 3-A	500	3170
MOORE COUNTY—		
Jim Cloud, Inc. & Dana O&G Co., C. R. Jones 1	¶8-100	3471
Texas Interstate P. L. Co., Zofness 2, (Sec. 55)	¶72	2345

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
WARD COUNTY—		
Simms Oil Co., M. Himmel 1	10	2612

CENTRAL EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
JOINER FIELD—		
Bellinger et al, T. C. Warren 1	15,000	3775
Blackwell O&G Co., Samp Stone 2	5500	3690
Bussa et al, W. P. Brett 1	4500	3910
C. & P. Oil Co., Maxwell 1	9000	3740
Gulf Prod. Co., Grissom 4	3600	3690
W. L. Murphy 1	4800	3763
E. E. Thrash 5	2500	3776
Humble O&R Co., Blackwell 1	7000	3696
J. E. Glover 1	10,000	3796
J. E. Glover 2	11,000	3790
Plowman 5	5000	3725
E. S. Thrash 1	3000	3800
J. W. Turner 1	10,000	3772
Wheelis 3	8000	3710
J. H. Wooley 3	8500	3683
H. L. Hunt et al, I. R. Thrash 3	5000	3783
Leonard Pet. Co., R. I. Cox 1	5000	3682
Magnolia Pet. Co., G. W. Eaton 2	10,000	3757
Roy Loosier 2	8000	3666
Roy Loosier 4	10,000	3667
J. W. McMurray et al, Samp Stone 1	12,000	3705
Sinclair O&G Co., A. S. Jarvis 3-B	6000	3678
Southern Oil Co., Giles 2-A	3000	3706
Stanolind O&G Co., D. W. O'Quinn 1	6000	3779
Sun Oil Co., R. L. Henson 1	300	3714
Ward Oil Corp. et al, E. S. Thrash 2	5500	3802

Company, Well and Location	Initial Production Bbls.	Depth
KILGORE FIELD—		
Atlantic Oil Prod. Co., S. G. Andrews 2	12,000	3652
East Texas Ref. Co., Andy Givens 1-B	15,000	3686
Empire Gas & Fuel Co., H. P. Leverett 2	10,000	3739
Glasscock et al, Kilgore Negro Church 1	7500	3595
Gulf Prod. Co. et al, M. T. Cole 1	8000	3542
W. Holt 2	7500	3603
W. Jernigan 3	8000	3620
W. Jernigan 4	10,000	3716
J. H. Palmer 1	9000	3607
A. Spear 5	9500	3550
Humble O&R Co., L. D. Crim 31	8000	3654
L. D. Crim 35	8500	3590
Magnolia Pet. Co., Jessie Blackman 2	8500	3628
Griffin Davis (40-ac) 3	8000	3644
W. P. Moore 5	12,000	3700
Magnolia & L. A. Warren & Slaughter, (2½-ac) 1-A	8000	3633
Merren & Mays, J. S. Dansby 1	10,000	3712
Mid-Kansas O&G Co., J. R. Beall 3	5500	3670
J. M. Blackman 2	5000	3654
J. M. Blackmon 4	5500	3652
Navarro Oil Co., B. F. Hindman 1	5500	3640
Republic Prod. Co., C. E. Christian 2	12,000	3664
Stanolind O&G Co., J. R. Beall 1	4500	3665
The Texas Co., Wiley Davis 1	12,000	3583
J. M. Dixon 1	11,500	3573
Thomason et al, J. Dickson (15½-ac) 1	3600	3683
Whittle & Kavenaugh No. 2, Inc., W. Smith 2	10,000	3590
LONGVIEW FIELD—		
Arkansas Fuel Oil Co., L. Walker 1	15,000	3646
Whittaker 1	14,000	3538
Jim Cloud, Inc. & Dana O&G Co., Christian-Anderson 1	12,000	3610
Cranfill & Reynolds Co., G. A. Porter 2	9500	3690
Rembert 2	7000	3505
Dyke Oil Co., J. M. Christian (36-ac) 1	6500	3617
East Texas Ref Co., Christian 1	10,000	3614
Fain-McGaha Oil Corp., W. A. Bauknight 1	11,000	3590
Gulf Prod. Co., Bozeman 2	6000	3623
O. L. Hickman et al, Fee 1	7000	3609
Humble O&R Co., Holland 2	10,000	3571
D. Johnston 2	8000	3599
D. Johnston 5	12,000	3608
W. R. Jones et al, Satterwhite (13½-ac) 1	7500	3711
Lion Oil Ref. Co., Williams 1	8000	3538
Magnolia Pet. Co., Clarence 2	15,000	3583
R. L. Saulter 2	9000	3620
Mook-Texas Oil Co., Rodden 1	13,000	3680
Prairie O&G Co., Isley 2	7000	3553
Roeser-Pendleton, Inc., Satterwhite 1-A	6500	3711
Satterwhite 1-B	6000	3726
Stanolind O&G Co.-Simms Oil Co., C. Harley 1	4000	3644
J. C. Persons 2	8000	3580
J. C. Persons 3	10,000	3567
Sneed & Worley, L. Willis 1	7000	3642
Sun Oil Co., J. W. Akin (166.2 -ac) 1	10,000	3628
J. M. Haynes (202-ac) 1	10,000	3625
Superior Oil Co., Ingram 1	12,000	3590
Vacuum Oil Co., T. B. White 1	12,000	3554
Whale Oil Co., G. W. Ritchey 1	11,000	3588
Wise & Jackson, R. Corbin 1	10,000	3625
Yount-Lee Oil Co., M. Jones 1	9000	3524
Lewis Lee 2	7500	3603
J. C. McKinley 4-B	8000	3607
E. Snoddy 1	8000	3543
E. Snoddy 1-A	8500	3566
VAN FIELD—		
Pure Oil Co., W. F. Swain (48-ac) 2	*	2981

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Col. Hatridge's Rischworth 1	*	117
LA SALLE COUNTY—		
Fred Volz' Coleman 1	*	40
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Houston Oil Co.'s Cartwright 23	100	3565
MEDINA COUNTY—		
F. E. Tegler's Nixon 6-A	*	957
NUECES COUNTY—		
Houston Oil Co.'s Morgan 2	*	4097
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Gant and Kilgore & Eastland Oil Co.'s Dan Auld 1	*	4007
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Mission Drlg. Co.'s O'Brien 2	1340	6452
United Prod. Co.'s Heard 5	20	3765
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COWLEY COUNTY—Dunlap et al, Smith 1, ne nw sw 7-35-5e.

RICE COUNTY—Jack Robertson, Rainey 2, nw se sw 3-21-6w.

SEDGWICK COUNTY — Derby Oil Co., Eastborough 6 (owd), cel se nw ne 19-27-2e.

SUMNER COUNTY—Collins et al, Vestal 1, sw c ne 19-34-2e.

OKLAHOMA

CARTER COUNTY — Magnolia Pet. Co., Dickerson 5, ne c se 24-1s-3w. Carter Oil Co., Franklin 4, ne c 24-1s-3w.

CREEK COUNTY—McCurry et al, Shoals 1, sw c nw 33-17-11e. Carpenter et al, Thompson 2, sw c nw sw 22-17-11e. M. S. Hughes, Flinchin 2, ne c sw sw 11-19-9e.

MUSKOGEE COUNTY—J. L. Haner et al, Stidham 6 (owd), nw c ne ne se 8-15-18e. J. Aggas, Hawkins 6 (owd), sw c nw se 28-16-15e.

OKLAHOMA COUNTY — Denver Producing & Refining Co., King 2, ne c nw sw nw 3-11-3w.

ROGERS COUNTY—Braman Oil Co., Murs 1, c sw se 33-19-17e.

TEXAS

ARCHER COUNTY — W. B. Omohundro, Wichita Falls, J. H. Turbeville, 40, 2, B 35, Harris sur, 450 ft from w and 150 ft from s line. F. J. Darr, Wichita Falls, B. Z. Lyle, 40, 2, S 2, S. P. Ry. sur, 450 ft from e and 810 ft from s line.

BRAZORIA COUNTY — Quintet Oil Co., Alvin, Texas, J. E. Levitt, 1107, 1, Peske sur, 900 ft from w and 300 ft from s line.

CARSON COUNTY — Cities Service Co., Pampa, Texas, J. M. Boling, 1, S 28, B Y2, 1320 ft from s and w lines of sec.

CHAMBERS COUNTY—Humble Oil & Refining Co., Houston, Texas, R. S. Sterling, 512, 8, J. McFadden sur, 150 ft from n and 150 ft from n and 1650 ft from e line.

Eastland County—Mays & Niver, Eastland, Texas, T. Morton, 40, 1, S 1, B 4, H&TC sur, 165 ft from s and w lines.

FANNIN COUNTY—Lucas Dev. Co., San Antonio, Texas, R. Peeler, 160, 1, T. L. Hart sur, 200 ft from e and 400 ft from s line.

FREESTONE COUNTY—Haley & Young, Teague, Texas, M. C. Lancaster, 110, 1, D. Avant sur, 160 ft from w and 1800 ft from s line. Joe Cochrum, 50, 1, D. Bullock sur, 300 ft from n and w lines.

GREGG COUNTY—Sinclair Oil & Gas Co., Fort Worth, Texas, S. G. Andrews, 200, 1, G. Walker sur, 710 ft from w and 990 ft from s line; 2, 710 ft from w and 990 ft from n line. A. A. King, A, 290, 4, P. W. Warraner sur, 990 ft from s and e lines; 5, 990 ft from n and w lines; 6, 1690 ft from n and 2330 ft from e line; 7, 990 ft from n and 710 ft from e line. A. A. King, B, 337, 1, A. Cormack sur, 990 ft from s and 840 ft from e line; 2, 2260 ft from e and 990 ft from s line; 3, 1900 ft from e and 2030 ft from s line; 4, 840 ft from e and 2530 ft from s line; 5, 1730 ft from w and 990 ft from s line. A. A. King, B, 111, 1, J. G. Walker, 710 ft from w and 990 ft from s line; 2, 710 ft from w and 990 ft from n line. C. L. Wickliffe et al, Tyler, Texas, D. Smith 5, 1, J. S. Caruthers sur, 325 ft from w and 120 ft from s line. Geo. L. Pace, Dallas, Texas, E. E. Anderson, 13, 1, G. W. Hooper sur, 150 ft from s and w lines. W. D. Anderson, 13, 2, G. W. Hooper sur, 150 ft from s and e lines. Gulf Prod. Co., Houston, Texas, S. B. Hall, 50, 1, D. Dainwood sur, 330 ft from n and e lines. Heep Oil Corp., Houston, Texas, M. T. Cole, 187, 1, J. A. Duncan sur, 330 ft from n and e lines. Mid-Kansas Oil & Gas Co., Shreveport, La., C. G. Strong, 113, 1, Jno. Blair sur, 295 ft n and 210 ft from w line. Fain-McGaha Oil Corp., Wichita Falls, Texas. E. W. Clements, 50, 2, C. Rhode sur, 330 ft from e and 250 ft from s line Atlantic Oil Prod. Co., Dallas, Texas, R. Whaley, 74, 1, W. P. Chisum sur, 801 ft from w and 146 ft from s line. S. G. Andrews, 25, B3, W. F. Hyde sur, 150 ft from n and e lines; B2, 178 ft from e and 150 ft from s line. Prairie Oil & Gas Co., Ranger, Texas, J. Elder, 3, R. W. Warraner sur, 150 ft from n and w lines. Redgrave & Fagan, Tyler, Texas A. Wynn, 5, 1, W. P. Chisum sur, 160 ft from s and e lines. Arkansas Fuel Oil Co., Shreveport, La., H. Stephens, 57, 1, W. H. Castleberry sur, 300 ft from w and 330 ft from n line. Stoddard & Delaney, Dallas, Texas, McKinley, 20, 1, D. Sanchez sur, 365 ft from n and 292 ft from w line; 2, 386 ft from s and 283 ft from e line. McKinley, 7, 1, D. Sanchez sur, 150 ft from e and 410 ft from s line. Geo. Fenton, 5, 1, D. Sanchez sur 285 ft from e and 197 ft from s line. Yount-Lee Oil Co., Beaumont, Texas, F. Smith, 1, Wm. Robinson sur, 7510 ft from n and 2310 ft from w line of survey. Texas Co., Shreveport, La., S. D. Walker, 213, 1, S. L. Davis sur, 150 ft from e and 330 ft from s line. F. X. Gowans, Longview, Texas, A. Spear, 3, 1, S. P. Hollingsworth sur, 129 ft from e and w lines. Searight et al, Tulsa, Okla., J. Blackman, 100, 1, W. P. Chisum sur, 200 ft from n and e lines. G. & A. Oil Co., Longview, Texas, R. R. Collins, 10, 1, D. Sanchez sur, 250 ft n of center of s line. Lonnie Glasscock, Longview, Texas, Kilgore School, 4, 1, M. Van Winkle sur, 166 ft from n and 150 ft from w line. Magnolia Pet. Co., Dallas, Texas, R. S. Saulter, 55, 3, H. H. Edwards sur, 300 ft e of No. 2. W. R. Nicholson, 50, 1, D. Sanchez 250 ft from s and w lines. W. A. Jones, Longview, L. Lacy, 10, 1, M. Van Winkle sur, 200 ft from e and 150 ft from s line. Cox & Hamon, Ardmore, Okla., L. A. Rodden, 105, 1, Rigsby & Crosby sur, 300 ft from w and 410 ft from s line. O. P. Breeding et al, Longview, G. E. Adams, 4½, 1, H. Hathaway sur, 219 ft from n and 156 ft from e line. Inland Oil Co., Tyler, M. Fenn, 17, 1, D. Ferguson sur, 150 ft from w and 462 ft from s line. Humble Oil & Ref. Co., Houston, J. A. Knowles, 100, 4, M. Van Winkle sur, 328 ft from e and 300 ft from s line; J. Thompson, 80, 1, Jno. Smith sur, 330 ft from s and w lines; L. Christian, 59, 1, G. W. Hooper sur, 150 ft from e and 330 ft from n line; S. S. Laird, B, 347, 9, M. Van Winkle sur, 409 ft from n and 4431 ft from e line; J. A. Knowles, 100, 4, M. Van Winkle sur, 150 ft from e and 409 ft from s line; W. R. Hughes, 185, 2, D. Sanchez sur, 306 ft from n and 300 ft from e line; W. W. Holland, 246, 1, Allon & Mosell sur, se corner; D. Thomas, 172, 4, M. Van Winkle sur, 200 ft sw and 1391 ft from se line. Stanolind Oil & Gas Co., Longview, Amer. Trust, 72, 1, Jno. Ruddle sur, 250 ft from s and w lines; G. F. Meadows, 50, 2, D. Sanchez sur, 200 ft from n and 375 ft from w line; J. H. Boles, 30, 1, H. H. Edwards sur, 379 ft from e and 255 ft from s line; J. C. Persons, 148, 5, Wm. Castleberry sur, 330 ft from n and 1480 ft from e line; M. Magrill, 20, 2, D. Sanchez sur, 364 ft from n and 330 ft from w line. Sun Oil Co., Dallas, C. Lloyd, 133, 5, W. P. Chisum Oil Co., Dallas, C. Lloyd, 133, 5, W. P. Chisum sur, 160 ft from w and 690 ft from s line; M. C. Satterwhite, 82, 2, W. H. Castleberry sur, 685 ft e of No. 1.

HARRIS COUNTY—J. P. Hunnicutt, Houston, G. E. Harvey, 200, 1, T. Patching sur, 150 ft from n and e lines.

JOHNSON COUNTY—H. F. Mitchell, Cleburne, W. H. Odom, 47, 1, T. Wells sur, center.

LOVING COUNTY—Lewis & Slagel Drilling Co., Colorado, W. D. Johnson, 640, 1, S 6, B 56, T&P sur, 330 ft from n and w lines.

LIMESTONE COUNTY—Haley & Young, Teague, J. P. Durham, 447, 1, N. M. Bain sur, 350 ft from n and 450 ft from w line.

NACOGDOCHES COUNTY—Geo. E. Ginter, Woden, W. G. Wells, 30, 1, J. A. Chireno sur, 400 ft from w and 800 ft from s line. Taylor Vaughan, Nacogdoches, D. Greer, 62, 1, M G. Herrera sur, 450 ft from n and 160 ft from w line.

PALO PINTO COUNTY — J. B. Gordon, Fort Worth, Watson, 4, 1, Strawn Twste.t 164 ft from n and 186 ft from e line Blk 41.

PECOS COUNTY—J. F. Slaughter, Iran, I. G. Yates, 200, 1, S 59, B 1, I&GN sur, 600 ft from n and 340 ft from e line.

RUSK COUNTY—Gulf Prod. Co., Houston, J. Wiley, 128, 1, Jas. Jordan sur, 150 ft from s and e lines. Blackwell Oil & Gas Co., Cushing, Okla., S. Stone, 53, 2, M. J. Pru sur, 255 ft from s and 957 ft from w line. Dapeil Co., Tyler, M. M. Barksdale, 15, 1, M. J. Pru sur, 200 ft from n and 160 ft from w line. Niola Oil Corp., Overton, M. C. Wilson, 10, 1, J. Lindley sur, 160 ft from e and 240 ft from s line. Geo. L. Pace, Dallas, D. F. Deason, 20, 3, M. J. Pru sur, 200 ft from n and w lines. Mills Bennett Prod. Co., Houston, W. J. Brightwell, 88, 6, R. W. Smith sur, se corner. Humble O&R co., Houston, A. D. Blackwell, 80, 4, M. J. Pru sur, 1850 ft from e and 264 ft from s line; C. O. Crim, 40, 1, Geo. Berry sur, 400 ft from n and 330 ft from e line; R. E. L. Silvey, A, 125, 2, T. J. Martin sur, 1270 ft from w and 1360 ft from s line; S. A. Plowman, 228, 9, F. Cordova sur, 750 ft from n and 150 ft from e line; W. Shaw, 73, 2, F. Cordova sur, 1041 ft from e and 194 ft from s line; B. J. Bagwell, 38, 1, Jno. Womack sur, 330 ft from s and e lines; W. B. Key, 42, 1, C. W. Field sur, 330 ft from n and e lines; First State Bk., 80, 2, Jno. Smith sur, 330 ft from n and w lines; L. D. Crim, 94, 36, I. Ruddle sur, 330 ft from nw and 367 ft from s line; B. Laird, A, 162, A3, I. Ruddle sur, 300 ft from se and 772 ft from n line; C. J. Thompson, 116, 7, M. J. Pru sur, 330 ft from s and 1600 ft from w line. Jackson, Wise, Snedden, Sapulpa, Okla., J. B. Wilson, 40, 2, M. J. Pru sur, 300 ft from n and e lines. Jno. W. Hooser, Tyler, G. W. Eaton, 20, 4A, F. Cordova sur, 150 ft from n and w lines; G. W. Eaton, 25, 2B, F. Cordova sur, 200 ft from e and 150 ft from s line; L. L. Jones, 15, 1, F. Cordova sur, 265 ft from w and 200 ft from s line; 2, 200 ft from n and 265 ft from e line; G. W. Eaton, 20, 3A, F. Cordova sur, 150 ft from s and w lines; 2A, 150 ft from s and e lines; G. W. Eaton, 25, 3B, F. Cordova sur, 150 ft from s and w lines. Mc-Kenzie & McIntyre Oil Corp., Tyler, W. O. Alford, 10, 1, F. Cordova sur, 267 ft from w and 150 ft from s line. Mid-Kansas O&G Co., Shreveport, La., J. Mills, 44, 1, J. B. Cadena sur, 150 ft from n and 715 ft from e line. A. W. Jones Oil Co., Dallas, W. Menefee, 70, 1, J. T. Walling sur, 280 ft from e and 1245 ft from s line. Snowden & McSweeney Co., Fort Worth, R. H. Laird, 133, 5, Chisum-Ruddle sur, 330 ft from n and w lines. Joe S. Anderson, Oklahoma City, M. Giles, 13, 1, M. J. Pru sur, 200 ft from s and w lines. Panhandle Refg. Co., Wichita Falls, M. Pool, 9, 1, F. Cordova sur, 275 ft from e and 175 ft from s line. Luling O&G Co., San Antonio, E. B. Alford, 10, 1, I. G. Parker sur, 160 ft from n and 159 ft from w line. Stanolind O&G Co., Longview, J. R. Beall, 83, 3, Wm. Chisum sur, 200 ft from s and e lines. J. J. O'Hern, Tyler, M. McMillan, 33, 2, Day sur, 225 ft from w and 100 ft from s line. Gulf Prod. Co., Houston, C. E. Christian, A, 100, 1, R. W. Smith sur, 330 ft from n and w lines; S. B. Hall, 50, 1, D. Dainwood sur, 330 ft from n and e lines. Magnolia Pet. Co., Dallas, H. Hampton, 169, 5, D. Ferguson sur, 400 ft from nw and sw lines; J. W. Flannagan, 37, 1, J. B. Cadena sur, 180 ft from n and 940 ft from e line.

SMITH COUNTY—Sun Oil Co., Dallas, J. A. Layne, 103, 2, S. Dexter sur, 300 ft from n and 780 ft from e line; J. D. Henson, 216, 2, J. Vargas sur, 200 ft from n and 285 ft from w line. Hooser & Big Indian Oil & Dev. Co., Tyler, Alexander, 13, 1, G. Vargas sur, 150 ft from n and 277 ft from e line. Mid-Kansas O&G Co., Shreveport, La., M. L. Thompson,

For Tabulation and Comparison See Market Section

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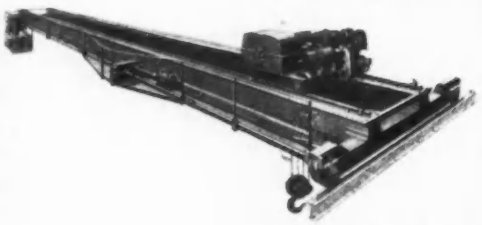

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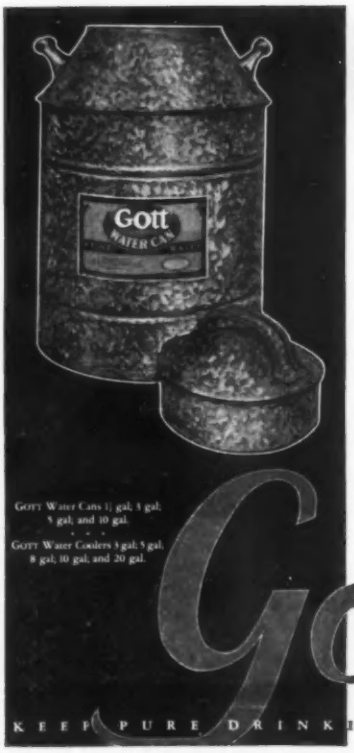

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95, 1, I. Moore sur, 150 ft from s and w lines. Magnolia Pet. Co., Dallas, J. R. Wright, 166, 6, J. Vargas sur, center; 7, 150 ft from n and e lines. Sinclair O&G Co., Fort Worth, D. Wright, 202, 1, J. Vargas sur, 943 ft from n and 833 ft from w line; 2, 2829 ft from n and 833 ft from w line; R. G. Wright, 107, 2, J. Vargas sur, 477 ft from e and 1832 ft from s line of sur; A. S. Jarvis, C, 256, 1, M. S. Coy sur, 660 ft from n and 962 ft from e line.

SAN PATIRCIO COUNTY — Welder O&G Co., Sinton, E. H. Welder, 300, 1, Portillo sur, 2730 ft from n and 600 ft from e line.

SHELBY COUNTY—A. G. Bagnall, Fort Worth, Y. D. Carroll, 160, 1, Jno. Barker sur, 378 ft from e and 323 ft from s line. Stephens & Evans, Dallas, J. Morrison, 210, 1, W. M. English sur, 270 ft from w and 650 ft from s line.

TRAVIS COUNTY—Fritz Fuchs, Taylor, L. Balestedt, 100, 1, A. Alexander sur, 450 ft from n and 750 ft from e line.

UPSHUR COUNTY—Humble O&R Co., Houston, J. K. Edwards, 281, 4, F. Ferguson sur, 348 ft e of center of w line; I. D. Smith, 100, 1, H. H. Edwards sur, 330 ft from w and 1950 ft from s line. Texas Co., Shreveport, La., H. L. Phillips, 154, 1, H. A. Hokit sur, 150 ft from n and e lines.

WARD COUNTY—J. E. Greer, Girvin, H. V. Carr, 10, 1, S 12, B 5, H&TC sur, 150 ft from n and e lines. Black et al, Grandfalls, Woodworth, 6, 1, S 11, B 5, H&TC sur, 150 ft from n and w lines.

WICHITA COUNTY — Schlaffke & Blair, Electra, W. B. Honaker, 36, 6, B 1, C&M sur, 1050 ft from n and 750 ft from w line. C. P. Sheldon, Electra, W. H. Klinkerman, 160, 1, Wag. Col. sur, 450 ft from e and 150 ft from s line of Blk 254. Geo. Proctor, Wichita Falls, J. B. Honaker, 40, 8, B 1, C&M sur, sw corner; 7, sw corner; 6, sw corner; 5, west central part of lease; 9, nw corner.

YOUNG COUNTY—Geo. Mollenkopf, Olney, S. L. Ellis, 80, 7, 2244 TE&L sur, 600 ft from w and 150 ft from s line. E. L. Kessler et al, Newcastle, C. Logan, 80, 1, B 24, Y.C.S.L sur, 1175 ft from n and 525 ft from e line. H. B. Sparks, Olney, R. Campbell, 40, 2A, 1383 TE&L sur, 300 ft e of No. 1. H. J. Whitaker, Olney, J. M. Maylor, 37, 1, S. Salee sur, 450 ft from n and 150 ft from w line. R. J. Watson et al, Newcostle, G. W. Terrell, 80, 1, 248 TE&L sur, Glover, Vernon, C. W. Johnson, 40, 9, B 11, E. W. Sargent sur, 150 ft from s and w lines.

LOUISIANA

CALCASIEU PARISH—S. A. Emerson & Pelican Gas & Oil Co., Shreveport, La. Pra. Maronne 3, 21-9s-11w, 150 ft n and 570 ft w of se cor se¼ sw¼.

UNION PARISH—D. S. Brooks, El Dorado, Otis Douglas 1, 9-22n-2w, 330 ft s and 330 ft e of nw cor ne¼ sw¼.

CALIFORNIA

MIDWAY—Victor Oil Co., No. 13, 35-32-23.

PLAYA DEL REY — The Ohio Oil Co., Recreation Gun Club 11, 28-2-15.

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports; *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn — abandoned; bbls—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd — shut down; sdtr — sidetracking; sp — spuddng; sr — straght reamng; std — standardizing; sw—salt water; td—total depth; ur—underreaming; wo — workover; wosr—waiting on standard rig.

Wildcat Reports From All Sections

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
GAINES COUNTY—		
Landreth Prod. Corp., Nick Alley 1	*	4801
PECOS COUNTY—		
Penn Oil Co.-Lockhart & Honolulu Oil Co., R. D. Webb 1	*	3096

CENTRAL EAST TEXAS

CAMP COUNTY—		
Gulf Coast Oil Co. (W. E. Duke), L. B. McCaslin 1	*	4028
Monitor Oil Co., E. A. King 1	*	3925
DELTA COUNTY—		
The Delta Co., M. Neatherly (26-ac) 2	*	3128
HENDERSON COUNTY—		
Westhyde Investment Co., Thornhill 1	*	4508
MORRIS COUNTY—		
Harry W. Elliott et al, C. D. Browne 1	*	3892
Lewis Prod. Co.-Selby O&G Co., Coffee-Browne 1	*	3704
SMITH COUNTY—		
Bailey Gaunce et al, S. S. Cook 1	*	2560
TITUS COUNTY—		
J. P. Flanagan et al, J. McGill 1	*	3887

ANDERSON COUNTY—H. B. McConnell et al's Walston 1, M. Main sur, dk. Rianjo Pet. Co.'s Lynn 1, sd 2200 ft.

BOWIE COUNTY—Tom Bell-W. A. Swift & G. W. Hindman's R. Merritt 1, Y. S. McKinney sur, sd 2650 ft. Lee J. Timberlake et al's Tidwell 2, L. M. Rice sur, elev 290 ft, sd 3000 ft.

CAMP COUNTY—Gulf Coast Oil Co. (W. E. Duke's) L. B. McCasslin (205½-ac) 1, Mary Hays sur, top Pecan chalk 2667 ft, abn in shale 4028 ft. Monitor Oil Co.'s E. A. King 1, A. C. Peck sur, Pecan chalk 2446-2918 ft, top Georgetown lime 3920-25 ft and abn.

CASS COUNTY—R. G. Baker et al's W. R. Karver 1, John Lick sur, top Pecan chalk 2286 ft, coring 3355 ft; C. A. Irwin (82-ac) 1, M. Harris sur, lcn. C. A. Everts Drlg. Co. et al's H. W. Whittington 1, H. E. Callahan sur, Pecan chalk 2410-3020 ft, sd 3920 ft. Geo. B. McCamey et al's R. E. Hall 1, H. Buckler sur, Pecan chalk 2387-2800 or 2850 ft, Austin chalk 3035-3145 ft, or 3007-3114 ft, top sand (dry) 3520 ft, sd shale 4001 ft. J. F. Morrissey et al's T. J. Wilson (120-ac) 1, J. A. McFarland sur, sd 3020 ft. C. E. Murdock et al's Coody-Bank 1, E. Watson sur, elev 401 ft, dr hard lime 4240 ft. Nelson-Wilson et al's Irvin 1, M. Harris sur, top Pecan chalk 2380 ft, dr 3190 ft. Olds-Smith et al's Joe Anthony 1, J. C. Byers sur, sd 3025 ft. Pigg & Davis (Fraley & Nicholson's) Ray Bryan 1, A. H. Latimer 1, sd 2050 ft.

CHEROKEE COUNTY—Bridges & Chandler's Berryman 1, Jas. Dill sur, dk. Denman et al's Renfrow-Smith 1, E. Moore sur, dk. Helen Clair Oil Co.'s Perkins 1, rig. W. A. Stone et al's E. M. Decker 1, Geo. Ruddle League, Pecan chalk 4342-4640 ft, top Austin chalk 5206 ft, fsh 5405 ft. Walton Oil Co.'s E. Singleton 1, Tillman Waters sur, sd 2960 ft. Wilson & Stubbs' Roberts 1, J. D. Wolfin sur, dk.

DELTA COUNTY—D. S. Hoad et al's J. J. Baker 1, B. Carson sur, elev 437 ft, sd 1750 ft.

FRANKLIN COUNTY—Harper-Byers Oil Co.'s A. J. Laws 1, D. G. Rogers sur, top Pecan chalk 2398 ft, sd 3420 ft.

FREESTONE COUNTY—J. P. Haley & Young's M. C. Lancaster 1, D. Avant sur, dk. E. L. Smith Oil Co.'s E. Jackson 1, Wiley Carter sur, elev 320 ft, top Austin chalk 2825 ft, sd 3135 ft.

HENDERSON COUNTY—Westhyde Inv. Co.'s Thornhill 1, elev 461 ft, Pecan chalk 2707-2850 ft, Austin chalk 3842-4316 ft, dry and abn 4508 ft.

HOPKINS COUNTY—Thelma Wells et al's J. M. Taylor 1, dk.

LAMAR COUNTY—Doyle & Rondeau et al's J. A. Guest 1, Luke Roberts sur, elev 525 ft, top Pecan chalk 2072 ft, sd 2705 ft. Puritan Oil Co.'s Geo. Parr 1, R. Russell sur, sp and sd. Indian State Oil Co.'s Tom Watson 1, L. Aud sur, sd 3620 ft.

LEON COUNTY—Cooper et al's Lynch 1, T. H. Gardner sur, sd 880 ft. Deep Rock Oil Co.'s Stone 1, Moody sur, sp and sd. Sun Oil Co.'s Ella Grayson 2, Marquette Blk, dr 3310 ft.

MORRIS COUNTY — Verne Dumas Pet. Co.'s Thos. Ball 1, A. S. Young sur, dk. Lewis & Selby O&G Co.'s Coffee-Browne 1, W. M. Coffee sur, Pecan chalk 1610-2050 ft, abn in sandy shale 3704 ft.

RAINS COUNTY—Berry-Hale et al's Owenby 1, J. Alexander sur, sd 2095 ft.

RED RIVER COUNTY—Concord Oil Co.'s Norris-Guest (35-ac) 2, lcn. C. M. Joiner Pet. Co.-Harris & Echols' E. Howison 1, W. Humphries sur, elev 540 ft, sd 1960 ft. Pierson et al (Concord Oil Co.'s) J. R. Dillahunty 1, I. Moore sur, sd 750 ft.

RUSK COUNTY — A. J. Brown et al's Strong 1, John Hallam sur, top Pecan chalk 2170 ft, fsh 3000 ft. Byrd & Frost, Inc.'s, Buckner 1, elev 334 ft, top Pecan 2818 ft, sd 2820 ft. Campbell et al's Compton 1, Del Rio sur, dk. Caprock O&G Co. (was R. C. Viehl's) Burton 1, J. J. Ybarbo sur, sp and sd. R. W. Giles-Melat et al's Newt Orr 1, Wm. Tippett sur, top Pecan chalk 1980 ft, sd 2780 ft. C. A. Everts Drlg. Co.'s J. E. Ross 1, J. Leath sur, top Pecan chalk 2395 ft, sd 2600 ft. Albert W. Jones Oil Co.'s J. Menefee 1, T. G. Walling sur, trace gas 1380-1420 ft, sd 2850 ft. J. S. Kimbrough et al's Weatherby 1, Robt. Martin sur, Pecan chalk 2784-3240 ft, sd shale 3650 ft. E. C. Laster & Miller's B. B. Gray 1, Jas. McLean sur, sd 1225 ft. Leonard Pet. Co.'s Sanger-Tablowski 1, J. P. Meredith sur, elev 306 ft, top Pecan chalk 2777 or 3090 to 3128 ft, cored Austin chalk 3930-34 ft. Moss et al's Matthews 1, Cartinas sur, sd 3300 ft in lime. Pitts et al's Freeman 1, J. Watkins sur, dk. Nat Sadler et al's Ed. Sparks 1, Abner Nail sur, sd 2080 ft. Mrs. S. O. Thompson et al's Price 1, H. Millikin sur, dk.

TITUS COUNTY—J. P. Flanagan et al's J. McGill (160-ac) 1, H. C. Riggs sur, elev 376 ft, Pecan chalk 1730-2205 ft, top Woodbine sand (dry) 3540 ft, abn in coarse gravel 3887 ft. C. M. Joiner Pet. Co.'s C. D. Browne 1, Bard Evans sur, Pecan chalk 1675-1960 ft, sd 2250 ft. C. B. Polk-Cook et al's M. C. Rogers (1500-ac) 1, B. Moore sur, sd 1060 ft.

WOOD COUNTY—Deep Rock Oil Co. et al's M. Smith 1, Johnson sur, Pecan chalk 2785-2895 ft, dr 4205 ft. Brennan & Woods' Mings 1, Stripling sur, dk. Main Holding Co.'s Stewart 1, E. ReHorse sur, sd 600 ft. Slaughter et al's Pritchett 1, King sur, dk. Paul Vitek Esate et al's Rosa Vogel 1, Sarah English sur, sd 2760 ft. Walmar Oil Co.'s J. Ivey 1, A. Hamilton sur, sd 4005 ft. Wood County Dev. Co.'s M. M. Rick 1, D. Fuller sur, sd 1950 ft. Woodco Oil & Gas Co.'s G. Davis (160-ac) 1, S. McDonald sur, materials.

EAST TEXAS

HARRISON COUNTY—O. H. Parkening's T. J. Taylor 1, Walter H. Payne sur, sd for fuel in shale and shells 2530 ft. Banner et al's Lowrey 1, W. O. Stanfield sur, sd 3650 ft. Ryan Cons. Pet. Corp.'s H. H. Key 1, E. Carroll sur, dr hd lime 5192 ft (Trinity test). J. M. Gholson's Bivins 1, T. D. Peterson sur, dr chalk 2480 ft. Olford et al's Bolding 1, W. O. Stanfield sur, dr 2600 ft. Thomas & Kinsey's J. R. Watson 1, Thos. Iden sur, rig (5000 ft test planned). Lloyd Oil Corp.'s Timmons 1, Jno. Findley sur, 10-inch 240 ft. Ryan Cons. Pet. Corp.'s J. M. Furrh 1, T. J. Copelain sur, dk.

MARION COUNTY — Rondeau & Hindman's Lindsey 1, Alex Albright sur, sd 400 ft. J. W. Hamilton's Wood 1, Alex Albright sur, sd 2380 ft. Claunch et al's Laun 1, Henry Fulgram sur, sd 300 ft. Sheldon et al's Brown 1, E. B. Fowler sur, sd 3750 ft.

NACOGDOCHES COUNTY — Benedum-Trees Oil Co.'s Conkrite 1, sd in sh at 5480

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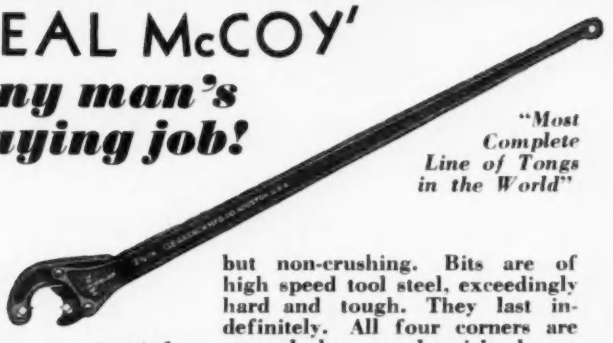

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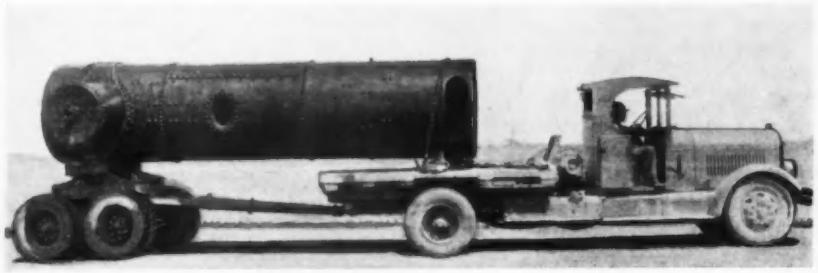

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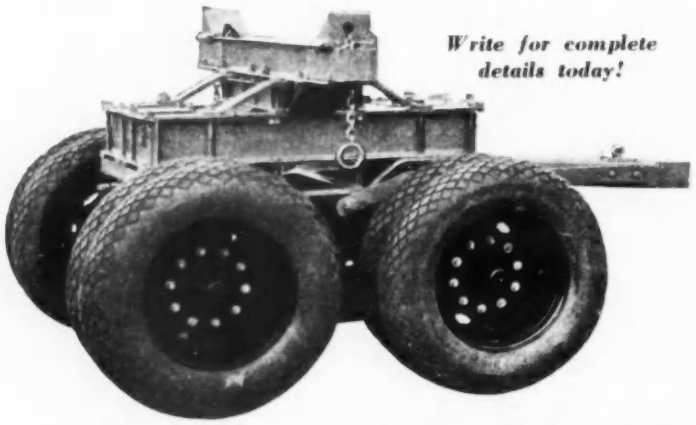

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PANOLA COUNTY—Dillon & Bradham's Baldwin 1, Hampton West sur, sd 1555 ft. United Prod. Corp.'s Steele 17, B .C. Jordan sur, lcn (Trinity test). Southwestern O&G Co.'s Vinson 1, C. T. Anderson sur, sd 3873 ft. Daisy O&G Co.'s Rucks Hrs. 1, Jno. Palmer sur, dr 2925 ft (corrected depth). Everett Prod. Co.'s McDaniel 4, Alamson Barr sur, dr 3780 ft. Moses & Wallace's C. L. Daniels 1, Isabel Hanks sur, dr 850 ft. Hoffer et al's Cameron 1, W. A. Lagrone sur, dk. Davidson et al's Latham 1, Wm. Rich sur, bldg dk for deep test, td 550 ft. Ark. La. P. L. Co.'s Werner 1, B. C. Jordan sur, 7-inch cas 3682 ft, bailed cas dry, td 4718 ft. Nelson et al's Williams 1, Jas. Hanks sur, 12½ cas 400 ft, dr 860 ft. Mid-Kansas O&G Co.'s Sholar 1, Susan Snider sur, dr 1540 ft. Stamps et al's Chadwick 1, Wm. Scantleberry sur, rig.

SHELBY COUNTY—Sloane Prosp. Co.'s F. B. Sandford 1, M. M. Vann sur, sd in shale 3417 ft. Chapparral Oil Co.'s Holt 2, Matthew Moore sur, claim sand core, did not set 6⅝ cas, sd 3127 ft. E. L. Chapman's Pickering Lbr. Co. 1, C. F. Henry sur, blew out est 25 mil ft gas spray fresh water, killed and cemtd 7-inch cas, td 3864 ft. Maulding et al's Frost Lbr. Ind. 1, A. B. Fountain sur, dr black shale 2441 ft. H. H. Gracey's J. A. Morrison 1, Wm. English sur, sd dr water well, td 2600 ft. I. M. Bradley et al's J. J. Asberry 1, G. W. Mitchell sur, sd in sandy lime 3280 ft. T. A. Martin's J. A. Bush 1, Alfred Lindsay sur, dk and mov in rig. Joiner et al's Foster & Billingsley 1, J. Bowling sur, ta in shale 1540 ft. Schultz et al's Hughes 1, J. Clay sur, sd 3425 ft. C. H. Tautenhahn's J. C. Bogard 1, Thos. Baker sur, sp partly rigged up, sd 20 ft. Glidden & Stephenson's Pickering Lbr. Co. 1, Jonas Harrison sur, dr bro chalk 3000 ft. Ridgeway et al's Polley 1, Domingo Gonzales sur, dk. Geo. L. Pace's Powers 1, Jno. Timms sur, dk. T. W. Tennent's Henry 1, Jno. Spradley sur, sp sd 90 ft for water. K. H. Francis' Jno. Mims 1, Mary Smith sur, 13⅜ cas 40 ft, setting 10-inch cas 393 ft. Smith et al's Carroll 1, J. A. Parker sur, cemt 10-inch 180 ft.

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
BRAZORIA COUNTY—		
United N. & S. Dev. Co., Lewis 1..	*	4404
HARRIS COUNTY—		
Humble O&R Co., Minnetex 6, Mykawa	*	5106
JACKSON COUNTY—		
Chicago-Gulf Co., Rodgers 1, Edna.	¶25	3952
LAVACA COUNTY—		
F. P. Zoch, DeBord 1	*	4520
LIBERTY COUNTY—		
Cranfill Reynolds, Esperson 19	*	4055
Humble O&R Co., Sterling 7	*	6355
WASHINGTON COUNTY—		
Fisher et al, Scholtze 1	*	390
Sun Oil Co., Janner 6	15	1288

BRAZORIA COUNTY — United N. & S. Dev. Co.'s Lewis 1, 2½ mi n Brazoria, abn in hd rk at 4404 ft. Layne et al's Wisdom 6-A, pumping 30 bbls bs and w, set scr 2330 ft. Cullen & West, Nash 1, 3 mi e Nash dome, dr 3200 ft in sn and sh. The Texas Co.'s Belcher 1, se Manvel, dr in sn at 4300 ft.

BURLESON COUNTY—Maerk & Son's I. F. Maerk, Sr., 1, 1 mi s Tunis, lcn. Reynolds Oil Co.'s Harris 1, 4 mi se Criesman, sd at 405 ft. J. E. Stubblefield's Mitchell 1, dr in gbo at 525 ft.

CHAMBERS COUNTY—Gulf Prod. Co.'s Wilburn 4, td 5171 ft, shwg little oil. Humphreys Corp.'s Fitzgerald Meadows 1, dr sh 4126 ft; Winfree 6, Barbers Hill, dr rk 3875 ft. Sinclair Cons. O&G Co.'s John H. Smith 3, dr li and rk at 4700 ft. Sun Oil Co.'s John

H. Smith 2, Barbers Hill, resetg liner, running milling tool, td 5405 ft; Smith 3, sdtr liner at 5265 ft; Anne Higgins 1, dr sn and sh 3500 ft. The Texas Co.'s Wilburn 6, reaming 3860-4111 ft, td 4491 ft; Winfree 2, fished out dr col and bit, reamed to 5515 ft.

FORT BEND — Cullen & West & Gulf's George 1, Thompson dome, 3490 ft, stky sh. Telschaw, Cady et al's Blakely 1, Blue Ridge, comp for 126 bbls at 3105 ft.

GALVESTON COUNTY — Yount Lee Oil Co.'s Cade 21, High Island, dr at 4985 ft.

HARDIN COUNTY—Plummer & McDaniels' Reed 1, 6 mi e Sour Lake, sd in gbo and li at 1322 ft. D. O. Speight's Guidrey 1, 4 mi s Batson, dr in gbo at 4045 ft.

HARRIS COUNTY—H. H. Givens & Daybault's Lobit 1, Addicks, dr clay and sn at 905 ft. Humble O&R Co.'s Minnetex 6, Mykawa, abn 5890 ft, plgd back to 5105 ft. Rio Bravo Oil Co.'s Settegast 22-A, set 1 jt 4¼ scr, tested 800 lbs gas, td 4186 ft, dr.

HOUSTON COUNTY — Apex Drlg. Co.'s Thompson Bros. Lbr. Co. 1, dr gbo 792 ft, small show oil and gas 396 ft. Mineral Research Corp.'s G. L. Murray 1, dr rk 1200 ft. Snow et al's Herron 1, Procella sur, spd and sd. Romsland et al's Pennington 1, sd at 500 ft. A. E. Winfree's B. F. Hodges 1, 14 mi e Crocket, sd 2295 ft.

JACKSON COUNTY — Chicago-Gulf Oil Co.'s Rodgers 1, Edna, comp for 25M cu ft gas at 3950 ft.

LAVACA COUNTY—F. P. Zoch's DeBord 1, T. G. Weston sur, abn in sn and sh at 4520 ft.

LEE COUNTY—Wheeler et al's Staltz Freed 1, 3 mi nw Lexington, sd 3634 ft. Burns et al's Sanders 1, sd 4200 ft.

LIBERTY COUNTY—J. R. Ingram's C. T. Palmer 1, ¾ mi s Cleveland, dr sh 1735 ft. Cranfill & Reynold's Davis 7, Esperson, temp abn in sh at 6300 ft. Gulf Prod. Co.'s Boyt 14, Hankamer, dr 5834 ft hd sn. Hamm et al's Harvard 1, Davis Hill, sd in gbo at 1015 ft. Tucker et al's Bell 1, Devers, dr in sh 2976 ft. Humble O&R Co.'s Sterling 7, Moss Bluff, abn 6352 ft; Sargent 2, Moss Bluff, stg 5930 ft. The Texas Co.'s McFaddin 5, dr gyp 942 ft; McFaddin 6, Moss Bluff, dr gyp 672 ft.

MATAGORDA COUNTY—Cockburn et al's Hawkins 3, Shepperds Mott, td 5030 ft, sdtr 3718 ft. E. M. Hamill et al's Myers 1, Markham, comp for 500 bbls at 3265 ft.

MILAM COUNTY—Red Bank Oil Co.'s J. A. Foster 1, 12 mi e Cameron, sd waiting on dr pipe, td 3512 ft, top Pecan Gap 3217 ft, elev 375 ft, gas show 2183-96 ft.

MONTGOMERY COUNTY—Price & Wilhite's Juergus 2, td 4820 ft.

ORANGE COUNTY — Ala-Tex Oil Co.'s Reed 1, 2½ mi se Orange, dr 2204 ft in sh. Crews Oil Co.'s Mansfield 1, Orange, dr gbo 1420 ft. Gulf Prod. Co.'s Kishi 1, Orange, dr sticky sh 5623 ft. Jefferson Prod. Co.'s Bland 1, Orange, dr sh 2931 ft. Texas Co.'s Polk-Kuhn 1, Port Neches, dk.

POLK COUNTY—Sunshine Oil Co.'s Olliver 1, 8 mi se Livingston, dk. Transcontinental Oil Co.'s M. E. Roberts 1, lcn.

ROBERTSON COUNTY—W. N. Quick's March 1, 7 mi sw Franklin, sd in sn at 1000 ft.

TYLER COUNTY—Allied Production Co.'s Wilson 3, 16 mi ne Woodville, dr blk sh 4955 ft. King Oil Co.'s Coswell 1, sd 1247 ft.

WASHINGTON COUNTY—Fisher et al's Scholtze 1, 10 mi n Brenham, Austin sur, abn at 390 ft. Penn Tex Oil Co.'s Kansas 2, Brenham, Williams sur, dr hd sn and li 3200 ft. Brenham Salt Dome Dev. Co.'s Kramer 1, Brenham, dr 3854 ft in sn and sh. Yequa Oil Corp.'s Graves 1, 3 mi n Independence, fsh in hd sh at 2635 ft. Sun Oil Co.'s Janner 6, Gray Hill, comp for 15 bbls at 1288 ft.

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
SABINE PARISH (Zwolle)—		
W. M. Coates, Hale 1, 1-7-13	552	2386
Sabine Royalties Co., Inc., Bill Hill 1, 5-7-11	5	2546

BIENVILLE PARISH — Arcadia Drilling Co.'s Atkins 1, 28-18-6w, sd in shale and gumbo laying water line, td 1165 ft.

BOSSIER PARISH—Andrews & Davlin's Nattin 1, 15-22-14, 4¼ cas 2882 ft, flowing est

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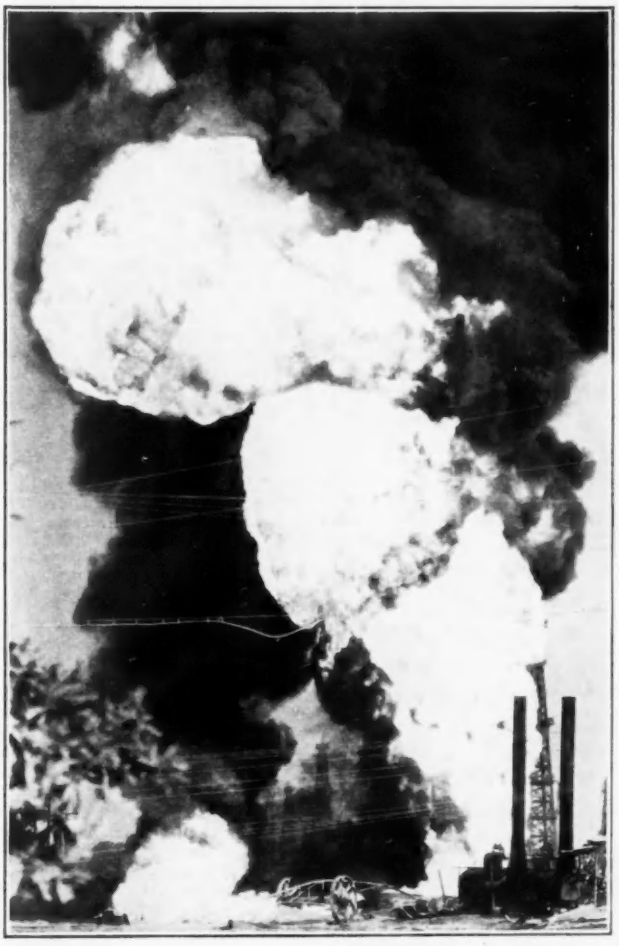

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HOUSTON, TEXAS
P.O. BOX 1454

2 to 5 bbls oil daily by heads, wo td 2890 ft. Rambaugh et al's Allison 1, 10-19-13, sd 1100 ft. Flint River O&G Co.'s DeMoss 1, 22-22-13, 6⅝ cas 3028 ft, bailed dry no show oil or gas, sd wo, td in sandy shale 3089 ft. Dr. Hankins et al's Newell 1, 12-19-11, sd 1410 ft. D. L. Perkins et al's Ardis 1, 13-15-11, 10-inch 120 ft dr 775 ft.

CADDO PARISH—Pelican Nat. Gas Co.'s Cooper 1, 29-18-14, ta in red shale and lime 3648 ft. United Gas Pub. Serv. Co.'s Smith 1, 33-23-16, cemtd 7-inch cas 5395 ft, td 5404 ft. W. P. Wallace, Tr.'s, Cunningham-O'Connor 2, nw nw 15-17-14, sp cemtd 10-inch 84 ft.

CALDWELL PARISH — Monroe Pet. Corp.'s Burton 1, 36-12-2e, sd acct title std 2986 ft. Carter Bell et al's Taylor 1, 17-14-4e, dk.

DE SOTO PARISH—Rellit O&G Co.'s Cannon Hrs. 1, 12-11-16, sd 1410 ft. W. H. Weichert's Smith 1, 31-14-15, sd 2350 ft. E. T. Oakes' Johnson 1, 3-13-15, sr in chalk 2011 ft. Walters & Nicholson's Jim Guy 1, 3-11-13, sd 700 ft. S. S. Meek, Tr.'s, Wagner 1, se se 5-12-14, sp 10-inch 101 ft, dr 1604 ft.

NATCHITOCHES PARISH—C. M. Talley et al's Talley 1, 29-11-10, sd 1380 ft. W. M. Coates et al's Collins 1, sw nw ne 28-9-10, base Midway chalk 2612 ft, base hd lime 4039 ft, tested 15 joints mud and sw 4020-91 ft, ta 4091 ft. J. W. Cooper et al's Cooper 1, 35-11-10, sd 3156 ft; Cooper 2-A, 35-11-10, sd 1515 ft.

RED RIVER PARISH—Mack Jourdan Co.'s Lockett 1, 32-13-10, sd 2500 ft.

SABINE PARISH—Langbridge Oil Corp.'s Stephens 1, se ne 17-9-11, sd repr rig 2215 ft. Houston-Sabine Prod. Co.'s Sabine 1, 36-8-12, sd 2440 ft. J. J. Kean's Belton 1, 31-9-13, 8-inch cas 1590 ft, sd 1610 ft. H. W. Perritt's Bowman-Hicks 4, 2-7-12, sd 2502 ft; Bowman-Hicks 5, 2-7-12, lcn. A. H. Thames' Edwards Est. 1, 8-8-13, sd 1200 ft. R. L. Gay, Tr.'s, Long-Bell A-1, nw nw 10-8-13, sr at 3495 ft to make ds test at 3629 ft. Ohio Oil Co.'s Bowman-Hicks 9, 35-8-12, lcn; Bowman-Hicks 10, 35-8-12, lcn; Bowman-Hicks 11, 2-7-12, lcn. Sabine Royalty Co., Inc.'s, Bill Hill 1, 5-7-11, pumping 5 bbls oil day, td 2546 ft. Diffie & Barrett's Lites 1, 34-8-11, 10-inch 105 ft, sd. Hudson & Bird's Walden 1, sw ne 26-8-11, sp 10-inch 100 ft, dr 200 ft. Hawkins et al's Moran 1, se ne 1-7-11, 400 ft oil in hole, wosr, td 2620 ft. Lyons & Neely's Duggan 1, 14-7-11, lcn. Texas Co.'s Nabors 1, ne se 2-7-11, sp 10-inch 90 ft, dr 1000 ft. W. M. Coates' Hale 1, sw ne 1-7-13, 6-inch cas 2080 ft, flowing 552 bbls oil day thru 5/16 inch choke with bailer in hole, td 2386 ft. Magnolia Pet. Co.'s Peterson 1, ne ne 10-7-11, 12-inch 130 ft, dr 2300 ft. L. K. McGuffin's Bush 1, 1-7-11, sd 400 ft. Zeke Lohman's McCormick 1, ne sw 2-7-11, dr 1400 ft. Ben Merritt's Byrd 2, 1-7-11, 10-inch 88 ft, sd. Roy Baker's Sabine 1, 11-7-12, sd 2440 ft. Loving Oil Co.'s Bowman-Hicks 16, 3-7-12, 6⅝ cas 2330 ft, tested dry at 2402, 2423, 2477 and 2627 ft, dr 2680 ft; Bowman-Hicks 17, 16-7-12, 15½ cas 110 ft, dr 2530 ft (6000 ft test). Gautier et al's Meshell 1, 30-8-12, tested dry, show oil, sd 2400 ft.

UNION PARISH—Don Brooks, Tr.'s Douglas 1, ne sw 9-22-2w, dk. Ruston Drilling Co.'s Summitt Land Co. 1, 1-21-1w, top Nacatosh 2033 ft, coring shale 2094 ft (formerly T. P. Fields, Tr.).

WEBSTER PARISH—D. M. Coyle's Frazier 1, 27-23-11, dk. Cassidy & Davis' Nickerson 1, 29-23-10, sd 160 ft.

WINN PARISH—Gulf Ref. Co.'s Bodcaw Lbr. Co. A-1, 4-10-5w, dr 3561 ft.

WYOMING

CARBON—Midwest Refining Co., U. P. 27, 27-11-81 dr. Prairie O&G, Bunker Hill 1, 29-27-87, rigged.

CONVERSE—Phillips Pete Corp., 27-32-69, comp core test at 1020 ft. John Ackard, 24-33-72, gas show 1490 ft. Gust Anderson, se 7-35-75, lcn. Otto Olston, 1-32-74, spd.

FREMONT—P. & R. 1, 33-34-92, wait tester 5670 ft. Wiebolt et al, 35-33-99, sd 1850 ft. Ward O&G Co., 28-34-90, cem 2030 ft.

HOT SPRINGS—Grebo Roy., Inc., 3-47-100, sd 836 ft.

LARAMIE—Prairie O&G Co., Warren 1, 22-13-62, dr shale 462 ft.

LINCOLN—Wyo. Prod. Co., 14-24-113, dr 1700 ft.

NATRONA — Midwest's 11, nw 32-34n-77, stand 5340 ft. Cuyler Oil Co., 23-36n-85w, stand 2290 ft. Midwest's Midway 1, ne 23-35n-79w, fsh tools 5994 ft.

PARK—Resolute Oil Co., 17-57-101, swbg 8725 ft, good showings.

SHERIDAN—R. & D. Oil Co., se 21-57-87, stand cem 600 ft.

SUBLETTE—Cretaceous Oil Co., sw 7-28-113, showing at 350 ft.

SWEETWATER—Mtn. Fuel Supply, Tucker 1, 18-13-99, co 3550 ft, td 3630 ft.

UINTA—Transwestern Petroleum, Ltd., 6-14-118, fsh tools 3100 ft. Clawson et al, nw 29-14n-118w, lcn.

WASHAKIE—Ohio Oil Co., lot 14, 19-45-92, dr 6590 ft.

WESTON—LeFaivre Oil Synd., se 29-45n-68w, resum dr at 1200 ft. Gose Oil Synd., 28-47-65, resum 4918 ft. Osage Wyo Oil Co., Witzell 1, se nw 30-46-64, co 1600 ft.

MONTANA

CASCADE—Andover Oil Co.'s Flowcree 1, se 29-21-2w, dr 2210 ft.

GALLATIN—Gallatin Valley Oil Co., nw 1-1n-4e, dr.

GLACIER — Fulton Pete Corp.'s Blackfeet 1, ne 28-38n-12w, more gas, dr 2500 ft. Jeffries-Hoerr's Dawson 1, ne 7-31-12w, sd 2980 ft.

GOLDEN VALLEY—Golden Valley Oil Co., 28-6n-22, dr 2050 ft.

LIBERTY—Northland O&G Co.'s Yurman 1, 32-33n-5e, sd 3700 ft. Peoples O&G Co., First Nat'l Bank 1, nw 17-36-6e, dr 1400 ft. California Co. for Utopia Oil Co., se 11-33-6e, dr bel 3214 ft.

ROSEBUD—Prairie O&G Co., 1-XX, 26-10-39e, start new rotary test.

SWEETGRASS — Shoshone Cons., nw 23-2n-15e, run 6-inch, td 5793 ft.

TETON—Andover Oil Co.'s Carlson 1, 5-24-4w, stand 150 ft. California Co.'s Sullivan 1, nw 34-27-7w, dr 685 ft. Earl Oil Corp., Gad 1, se 22-22-8w, dr 3270 ft. Trans-American Oil Co., State 1, sw 21-24-8w, fsh 360 ft.

TOOLE—Liquid Gold Oil Co.'s Robert 1, ne 25-36-12, wait for 5-inch at 2500 ft. Oregon Oil Synd., se 20-36-2e, wait for equipment.

YELLOWSTONE—Peter Antonioli, 21-2n-25e, wait cas 1600 ft.

COLORADO

ADAMS—N. M. Slatt's 1, se 27-26-64w, carry 6⅝-inch 3700 ft.

ARAPAHOE—McDeb Dr. Co.'s Fitzsimons 1, ne 7-4n-68w, run 4¾-inch, td 5835 ft.

BOULDER—C. T. Ahlstrand's Woodley 1, nw 8-3n-70, stand 12 ft.

EL PASO — Utemore Synd., Cannon 1, ne 10-16s-66w, sd 1125 ft.

GRAND—O'l Mineral Land, Inc., McElroy 1, sw 14-2n-81w, stand 545 ft.

HUERFANO—Parker Club, Inc., Fee 1, se 4-28s-68w, may start new hole.

JEFFERSON—Ruby Hill O&G Co.'s Braden 1, se 24-4s-59w, stand, td 3920 ft.

LA PLATA — McGarr Pete Co.'s Pinon Mesa 1, ne 34-33n-12, mvg in. Klem Pete Corp.'s Olbert 1, se 9-26n-12w, stand 3125 ft. Murchison Oil Co., Doescher 1, nw 29-33n-12, changing to cable tools 1515 ft.

LINCOLN—Eastern Colo. Oil Corp.'s State 1, 36-14n-57w, dr 3395 ft.

MONTROSE — Uncompahgre O&G Co., Title & Trust 2, 27-50n-10w, td 1021 ft.

MORGAN—Ind. Terr. Illum. Oil Co., State 1, ne 16-1n-57w, dr 4110 ft, hole trouble. Independent O&R Co., Schmidt 1, nw 19-6n-60w, prep to bld rig. Johan et al, Kent 1, sw 2-2n-57w, dr 776 ft. Colo. Ass. Oil Co., 1, se 14-4n-58w, lcn.

PUEBLO — Anchor Oil Co.'sEasley 1, sw 35-22s-57w, td 705 ft.

PARK—So. Park Oil Co.'s Milligan 1, se 13-8s-76w, dr 2100 ft. So. Park O&G Co.'s Easche 1, ne 5-9s-76w, prep to run 8¼-inch at 2370 ft.

RIO BLANCO—California Co.'s Raven 1, se 20-2n-102w, dr 1250 ft. Magnolia Pete Co.'s Maddock 1, se 9-2s-96w, fsh 600 ft.

WASHINGTON—Middlemist Oil Co.'s Middlemist 1, se 14-4-56, stand 1510 ft.

WELD — Reiter-Foster and Platte Valley Pete Corp., Johnson 1, nw 24-6n-61w, ready to

dr cem 6226 ft. Aztec Corp., Kirchoff 1, se 1-6n-61w, mvg in. Retter Oil Co., Smith 1, 14-1n-68w, co 1171 ft. Conoco, Tatum 1, sw 24-6n-61w, lcn. Conoco, Briggs 1, sw 13-6n-61w, mvg in.

NEW MEXICO

CHAVES—Warman Oil Trust, Siebert 1, ne 27-13-23, sd indefinitely 2686 ft. Neal et al, Russell 1, nw 21-14-25e, stand 2320 ft.

DE BACA—Salado Dome Oil Corp., sw 6-4n-20e, ready to dr out cem 3200 ft. Landowners Oil Co., State 1, ne 16-1s-27e, co, td 4508 ft.

GUADALUPE—N. M. Prod. & Ref. Co., McMullen 1, 24-5n-16e, dr 1605 ft.

HARDING—Kummbaca O&G Co., Kerlin 1, se 34-21s-30e, 3M gas at 970 ft.

LUNA—Angelus Oil Mining Ass'n 1, 20-21s-10w, dr 6122 ft.

McKINLEY—J. W. Halsell's 1, 17-18-9w, dd 3255 ft. Wms. et al's A. T. S. F. 1, se 19-18n-8, stand 1900 ft. United Kern Pete, Inc., sw 1-18n-11w, lcn. Dysart et al, Dysart 2, ne 14-14-10w, sd temp at 1315 ft. Johnswood Oil Co., Hannett 1, sw 12-15n-10w, dr 480 ft.

MORA—Fulton Pete Co.'s Santa Fe Dioxice Co., Wagonmound 1, ne 14-19-21, stand 1316 ft.

OTERO—Ernest et al's 1, se 20-25s-7e, sd 1005 ft. Pasotero Oil Corp., Evans 1, sw 22-24s-12e, dr at 1265 ft.

RIO ARRIBA—Berrenger et al's Hartman 1, ne 8-29n-7w, sd 825 ft. San Juan Pete Co.'s Gov't 1, se 14-30n-7w, sd 250 ft. Governador Oil Co.'s 1, se 12-29n-7w, dr 1320 ft.

ROOSEVELT—Peterson et al, Good 1, ne 32-5s-30e, ready to spud.

SAN JUAN—Kutz Canon O&G Co.'s Day 1, se 20-28n-10w, dr 3350 ft. Rio Bravo Dev. Co.'s 2, 9-29-11, stand 1530 ft. Continental Oil Co.'s Rattlesnake 24, 1-29n-19w, sdtr 4675 ft, td 4730 ft. San Juan Leaseholds, Bowman 3, ne 30-30-15, sd 2635 ft. Reserve Oil Co., Reserve 3, se 36-22-14, td 810 ft. R. C. Oswell et al, nw 34-30n-11w, dr 525 ft. Williams et al, Stallings 1, sw 17-25n-15w, stand 150 ft. Ortega et al, Westwater 2, ne 24-31n-16w, co.

SANTA FE—Jones, Owsley et al, 5-10-9e, dr 170 ft.

TORRANCE—Williams et al's Staplin 1, ne 16-8n-10e, ready to resume 1643 ft.

VALENCIA—Harlan et al, Harlan 4, nw 5-6n-2e, stand 3800 ft. Acme Dev. Co., Santa Fe 1, nw 27-7-4w, stand 5000 ft.

KANSAS

MORTON COUNTY—Hydraulic Oil Co., State land 1, nw se, 22-34-43w, sd 3460 ft.

SUMNER COUNTY—Trees Oil Co. & Shell, Springate 1, ne se sw, 6-34-2e, spd and sd.

COWLEY COUNTY—Fisher et al, Hunt 1, c sw se se 11-34-3e, ru and sd.

CHAUTAUQUA COUNTY—Leighty et al, Lemert 1, ne se, 36-34-9e, spd.

SUMNER COUNTY—Spencer et al, Porter 1, ne sw, 12-33-4w, sd 2550 ft. Otstot et al, Warlow 2, c se nw se, 22-33-3w, td 4070 ft, sd.

FORD COUNTY—Carter et al. Community Everett 18, c ne, 22-29-21w (6000 ft test), reaming, td 5432 ft

SEDGWICK COUNTY—Buck et al, McNaman 1, c ne nw nw 2-20-1e, sd 3225 ft. Magnolia, McLaughlin 1, nw c, 31-28-1w, td 1360 ft, co.

FORD COUNTY—Swain et al, Henthorn 1, c nw, 21-25-24w, 5-inch 4645 ft, sd 5105 ft.

STAFFORD COUNTY—Rosenthal, Stanolind & Amerada, Gray 1, c ne, 11-34-13w, sd 2900 ft.

HARVEY COUNTY—Liggett et al, Davis 1, c sw se ne, 7-24-1e, rig. J. P. Flanagan, Sheridan 1, c sw, 32-22-1e, dr 1640 ft.

MARION COUNTY—Maidwell, La Master 1, nw c, 31-22-4e, td 650 ft, sd.

COFFEY COUNTY—Hegberg et al, Kroft 1, se sw se, 30-22-14e, 10-inch 818 ft, sd 1565 ft.

BARTON COUNTY—McCool et al, Isern 1, c sw se ne, 12-20-11w, td 1600 ft, sd.

RUSH COUNTY — Dewey & Mitchell, Greenwalt 1, c sw, 17-19-16w, 6-inch 3630 ft, sd 3725 ft.

BARTON COUNTY—Skelton Oil, Ott 1, c se se, 16-19-14w, 8-inch 2414 ft, sd 2432 ft.

RICE COUNTY — Deitrick & Langston, Purcell 1, nw c, 33-19-9?, T. Congl. 3225, 3244-46, 2500 ft oil in hole, swab down to 400 ft td 3300 ft.

BARTON COUNTY—Syndicate Oil, Boertz 1, c nw se ne, 13-18-12w, td 2450 ft sd.

CHASE COUNTY—Borden et al, Atkinson 1, nw se, 18-18-7e, machine.

MORRIS COUNTY — Urschell et al, Bersuch 1, c nw se nw, 10-17-7e, ru and sd.

ELLSWORTH COUNTY—Keyes Bros. et al, Gregory 1, sw c, 23-16-9w, td 1245 ft, fsh.

MORRIS COUNTY — Hankenson et al, Cessnum 1, sw se 24-17-9e, 2475-78 ft hfw, ur 6-inch.

FRANKLIN COUNTY—Fields et al, Usher 1, se c 35-16-17e, sd 400 ft.

ELLSWORTH COUNTY — Milton et al, Kaster 1, se ne 6-14-9w, sd 3290 ft.

OSAGE COUNTY—Riggs-Smith, Wood 1, c se nw 31-14-15e, 10-inch 1050 ft, sd.

RUSSELL COUNTY — Austin Drlg. Co., Rockefeller 1, se c 6-13-12w, 3320-25 ft, hfw td 3374 ft sd.

SALINE COUNTY—Twin Mounds Oil Co., Weis 1, c w½ ne nw, 30-13-4w (owd), td 2710 ft, dr by 8-inch.

DICKINSON COUNTY—Severs et al, Livingood 1, ne sw 13-13-2e, dr 4026 ft, so.

RUSSELL COUNTY — Gilbreath et al, Bratton 1, c ne, 33-11-13w, pb 3189 ft, sd.

LINCOLN COUNTY—Buck et al, Schultz 1, c se ne sw 19-11-6w, rog.

GRAHAM COUNTY — Schleimeyer et al, Clark 1, sw ne ne, 11-9-25w, 4639-4646 ft hfw, td 4648 ft sd.

CLAY COUNTY—Nebraska Oil, Tivier 1, sw c 19-8-9e, sd 2700 ft.

SHERIDAN COUNTY — Flo et al, Shoemaker 1, se sw sw 27-27-26w, 10-inch 1178 ft, sd 2445 ft.

WASHINGTON COUNTY — Sincox, Penwell 1, nw se nw, 16-3-3e, sd 1720 ft.

OKLAHOMA

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Bros., Forbes 1, ne c se nw nw, sd 1420 ft.

KAY COUNTY—T 27n, R 2e, Sec. 9, Mummer et al, Sornick 1, nw c se, sfw 2070-2170 ft, sd 3693 ft.

GRANT COUNTY—T 25n, R 4w, Sec. 22,

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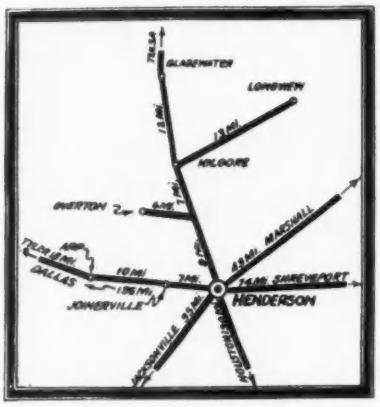

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HENDERSON, TEXAS

Cowden et al, Collmer 2, ne c se ne sw, sd 5640 ft, tools lost.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, J. V. Bailey et al, Acre 1, c sw ne, show gas 5298-5303 ft, sd 5502 ft.

GARFIELD COUNTY—T 24n, R 6w, Sec. 9, Pulse & Beamer, White 1, se c nw, sd 5850 ft.

BLAINE COUNTY—T 19n, R 10w, Sec. 13, Washoma Pet. Co., Phillips 1, c nw sw, td 5120 ft, to abn.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healey et al, Quier 1, se c sw, sd 3970 ft.

KAY COUNTY—T 28n, R 3e, Sec. 24, Summitt Drlg. Co., Hays 1, nw ne nw, td 3675 ft, pb 3222 ft.

PAWNEE COUNTY—T 23n, R 5e, Sec. 15, Cochran et al, McFadden 1, ne c sw, rig. T 22n, R 5e, Sec. 2, Sherry et al, Milsap 1, se c sw, hfw 3505-50 ft, sd 3552 ft. T 20n, R 5e, Sec. 6, W. A. Rookstool et al, Berry 1, nw ne sw, sd 1951 ft, show gas.

OKFUSKEE COUNTY—T 12n, R 10e, Sec. 3, Shepperd et al, Shepperd 1, se nw sw, sd 3690 ft.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al, McDuff 1, sw nw se, show gas 5654-64 ft, sd 5733 ft.

LATIMER COUNTY—T 6n, R 19e, Sec. 16, P. English et al, Weaver 1, c nw se, sd 1542 ft.

OKLAHOMA COUNTY—T 12n, R 4w, Sec. 17, C. F. Cuniff, Trustee, St. Joseph 1, sw c ne sw se, sd 6700 ft.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 19, Bunte et al, Bruner 1, se c nw, rig.

ROGER MILLS COUNTY—T 12n, R 24w, Sec. 4, J. J. Roog & Palmer, Davis 1, c nw ne (owd), dr 3010 ft.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey et al, Robinson 1, c ne nw, sd 150 ft.

WASHITA COUNTY—T 8n, R 19w, Sec. 29, Snodgrass et al, Blocker 1, nw c, dr 1927 ft. T 8n, R 18w, Sec. 21, Burns & Prince, Dock 1, sw c, sd 1050 ft.

GREER COUNTY—T 7n, R 22w, Sec. 1, Good & Dowell, Cliffel 1, nw c, sand 1462-1501 ft, sd 1745 ft. T 7n, R 21w, Sec. 23, H. A. French, Murphy 1, sw nw se, sd 1654 ft.

GARVIN COUNTY—T 2n, R 2w, Sec. 24, Malernee, Phillips 1, ne c sw, sd 4800 ft.

COAL COUNTY—T 2n, R 8e, Sec. 10, Whitney et al, Miller 1, se c ne (owd), sd 760 ft. T 1n, R 8e, Sec. 35, W. E. McCraw O&G Co., Stiring 1, ne c se, sd 1730 ft.

ATOKA COUNTY—T 3s, R 10e, Sec. 18, Brookshire et al, Guinn 1, ne c, show gas 360-72 ft, sd 500 ft.

BRYAN COUNTY—T 7s, R 10e, Sec. 8, Bryan Oil Co., E. Childs 1, ne se sw, sd 660 ft.

SOUTHERN CALIFORNIA

ALHAMBRA — Yellowstone Oil Corp.'s Huntington 1, 24-1-13, plugging back from 3919 ft, will make production test at 1200 ft; Construccio 1, 19-1-12, dr shale and streaks oil sand 1600 ft.

CALABASAS—L. W. Rucker's No. 1, 26-1-17, co 290 ft.

FULLERTON — Standard's Bastanchury 1, 21-3-10, plugged to 7625 ft, trying to locate water, td 8145 ft.

Hermosa Beach—Cone and Smith's Kellogg-Burdick 2, 6-4-14, lcn; Kellogg-Burdick 3, 6-4-14, lcn.

NEWHALL—W. T. Ball's No. 1, 34-3-16, lcn. Guarantee Oil Co.'s No. 1, dr shale 3215 ft. Rayne Oil Co.'s No. 1, 11-3-16, rigging up rotary.

NEWPORT—Nuoil Co.'s Gessell 2, 29-6-10, dr sand 800 ft. Standard's Irvine 1, 26-6-10, dr shale 5438 ft.

OLINDA—Graham-Loftus Oil Co.'s No. 1, 18-3-9, dr 9100 ft.

PUENTE—El Dorado Oil Co.'s Baird 1, 30-2-9, dr hard sand 1615 ft.

SAN FERNANDO — El Caballero Estates Co.'s No. 1, 23-1-16, dr 920 ft.

SUNSET BEACH—Gieck Oil Corp.'s No. 1, 20-5-11, dr shale 5930 ft.

WILMINGTON—York-Smullin's Watson 1, 29-4-13, plugged to 3970 ft, shutting off bottom water.

MONTEBELLO—Blinn and Gray's Calkins 1, sdtr iron 4345 ft.

NORTHERN CALIFORNIA

Completions

KERN COUNTY—
Shell's Morris 1, 32-30-29..... * 5977
SAN LUIS OBISPO COUNTY—
Cities Service Pet. Co.'s No. 1, 20-28-15 ..... * 1527

KERN COUNTY

BELRIDGE—Belridge Oil Co.'s No. 27-64, 27-27-20, will deepen from 4933 ft and complete; No. 35-48, 35-27-20, dr out cmt 5005 ft; No. 35-49, 35-27-20, deepening from 1055 ft. Continental's Result 2, 36-27-20, swabbing oil and mud, td 5253 ft, will make commercial producer. General Pet.'s Berry 1, 30-28-21, sr 6269 ft. Standard's McPhail 2, 36-27-20, swabbing water, td 5671 ft. K. C. Wallace's No. 1, 32-29-21, 6¼-in cas re-cmt 2591 ft, td 4212 ft.

BUTTONWILLOW—Wilshire Oil Co.'s Nordon-Salisbury 1, 7-29-24, sd 6990 ft.

DEVIL'S DEN—Cumberland Oil Co.'s Cumberland 2, 21-26-18, dr shale 600 ft. Standard's Alferitz 1, 14-25-18, pumping oil and water above plug at 2700 ft.

McKITTRICK—California Oil Producers' No. 2, 30-30-22, dr hard sand 3700 ft.

TEMBLOR HILLS — Kent & McDonald's No. 1, 3-32-22, co 1812 ft.

WEED PATCH—Osborn and Colter's Shell-Duff 1, 15-30-29, swabbing oil and water, plugged to 3465 ft; Duff 2, 15-30-29, dr sand 1600 ft. Shell's Porter-Day 1, 29-30-29, pumping at 100-bbl rate, plugged to 5789 ft.

SANTA BARBARA COUNTY

GOLETA—General Pet.'s More 3, dr shale 5850 ft. Ohio's Oakley 1, 16-4-28, new lcn, bldg rig. Strickland and Tippet's Duncan 1A, 19-4-27, dr shale 3940 ft.

GUADALUPE—Sovereign Oil Co.'s Donovan 1, 20-10-35, re-dr 4460 ft.

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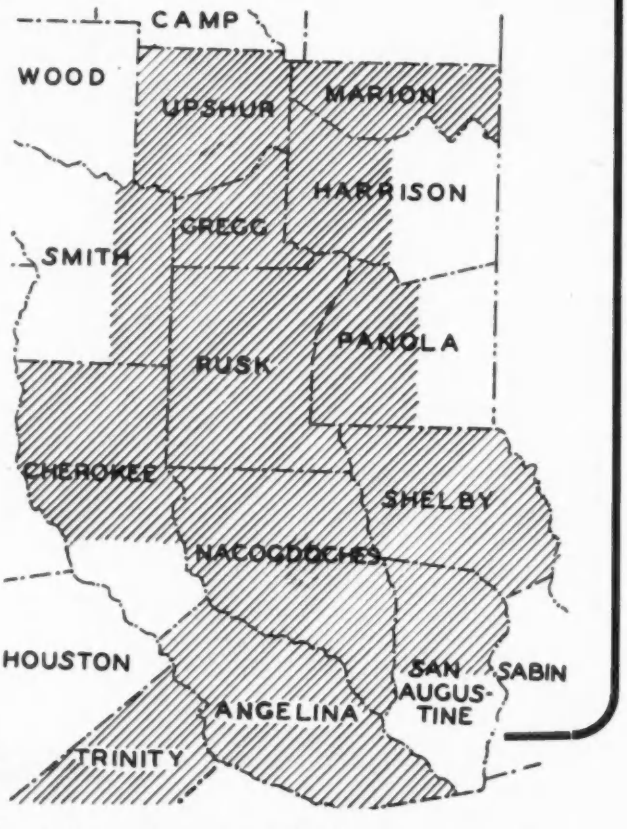
Again, through cooperation of large oil companies, abstractors and surveyors, we accomplished the herculean task of building an accurate map in a short space of time. We now have all the area mapped in single county maps on the 1,000-vara scale; in combination maps of favorable areas comprising parts of many counties; in large-scale pool maps,—all these showing up to date ownerships of land and lease, and oil development. We have as many as six kinds of maps made to different scales to suit various branches of the oil industry on some of this territory. Our 12-page catalog is illustrated, giving prices of any kind of map to suit any need not only on East Texas territory, but any active area in Texas or New Mexico. May be had for the asking.

[**Several ZINGERY maps will be found on other pages in editorial matter—this issue.*]



Index showing area on which County maps are completed on the 1,000-vara scale.

ZINGERY OIL MAP COMPANY
813 THROCKMORTON FORT WORTH, TEXAS

LOS ALAMOS—N. S. Wilson's No. 1, 2-7-33, dr gray sand 3100 ft.

ORELLA—General Pet.'s Erburo 10, plugged to 3100 ft, sd. Oakburn Oil Co.'s Sperry 169-1, cmt iron 750 ft, td 2821 ft.

VENTURA COUNTY

CONEJO—Triunfo Oil Co.'s No. 1, 24-1-19, dr shale 2500 ft.

RINCON — Chanslor-Canfield Midway Oil Co.'s Hobson A2, 23-3-24, testing at 8050 ft, td 10,030 ft. Continental's Grubb 1, 23-3-24, dr hard sand 5760 ft.

SANTA PAULA — San Pedro-Pt. Fermin's Kellerman 2, 13-4-21, pulling 4¼-in cas, td 3410 ft.

SESPE—Superior's Kirtlan 14-1, 14-4-21, dr shale 7665 ft.

SOUTH MOUNTAIN—H. H. Bell's Lemon 1, 22-3-21, new lcn.

MISCELLANEOUS

FRESNO COUNTY—Associated's Jacalitos 1, 22-21-15, dr shale 5785 ft.

KINGS COUNTY—L. W. Seymour's No. 1, 10-23-16, co 1010 ft. T. H. Purman's Avenal 1, 36-23-17, dr shale 4035 ft.

MENDOCINO COUNTY—Twin State Oil Co.'s Soldani 1, 14-12-17, dr shale 6959 ft.

SAN LUIS OBISPO COUNTY—A. T. Jergins' No. 1, 6-32-13, dr shale 1460 ft. Paso Robles Synd.'s Emerick 1, 34-27-11, dr hard sand 4040 ft.

TULARE COUNTY — Big Four Drilling Co.'s No. 1, 29-23-27, co 3915 ft, td 4333 ft. Ducor Pet. Co.'s Zimmerman 1, 14-24-27, co 2180 ft, will deepen. Ellis and Stanford's No. 1, 20-24-23, dr shale 1050 ft.

ARKANSAS

CHICOT COUNTY—W. R. Smith's Lytle 1, 31-18-3, ta 2925 ft.

CLAY COUNTY—S. C. Jeffus, Tr.'s Underwood 1, 4-20-8e, sd repr rig 1252 ft.

CLEBURNE COUNTY—Donnell et al's Fee 1, 33-11-9, sd after testing sw, td 3515 ft.

CLEVELAND COUNTY — Crumm & Stilwell's Bell 1, 10-10s-12w, rig.

COLUMBIA COUNTY — Kendall Oil Co.'s Fullenwider & Kitchen 1, ne ne 13-17-22, cemtd 8¼ cas 800 ft.

DALLAS COUNTY — Jno. James, Tr.'s Fordyce Lbr. Co. 1, 11-9s-15w, sd 2520 ft. E. C. Brewer, Tr.'s Hillman 1, 20-10-13, sd in white sand 2869 ft.

DREW COUNTY — Cooperative Dev. Co.'s Hardy 1, ne ne 6-13s-7w, mov in rig.

HOT SPRINGS COUNTY—Starr Oil Co.'s Cunningham 1, 11-5-16, sd 1300 ft.

JOHNSON COUNTY—Blackwell O&G Co.'s Wyver 1, 21-8-23, ta 5600 ft.

LA FAYETTE COUNTY—Crawford Drilling Co.'s Vaughan 1, 25-19-25, dk. McIver et al's Hattle 1, 1-20-26, dr gumbo 3278 ft.

LAWRENCE COUNTY — Marguerite Dev. Co.'s Broadway 1, 31-17-1, sd 45 ft.

LINCOLN COUNTY—L. B. Cook, Tr.'s McGehee Pltg. o. 1, 5-8s-7w, cemtd 10-inch cas 1294 ft, td 2110 ft.

LITTLE RIVER COUNTY—Fay Roberts Oil Co.'s Russell 1, 25-12-29, lcn.

LOGAN COUNTY—M. W. Greesom's Parks 1, 21-8-24, sd 1309 ft. J. H. Flowers' White 1, 13-5-26, sd 3610 ft.

MILLER COUNTY—J. D. McRae's Smith 1, 28-15-26, lcn abn, will not drill. W. E. Noel et al's Dickson 1, 11-20-27, lcn.

OUACHITA COUNTY—Copenhaver et al's Elliott 1, 11-15-17, bailed dry at 2210 ft, sd.

PIKE COUNTY—Henderson et al's Tilyou 1, 26-8-24, ta 2920 ft. E. R. Henderson's Lee 1, 31-8s-24w, 8¼ cas 350 ft, coring red shale 462 ft (sec hole).

SCOTT COUNTY — Heavener O&G Co.'s Reser 1, 36-4-26, sd 1536 ft. Waldron O&G Co.'s J. G. White 1, 17-3n-29w, sd wo cas 1860 ft (sec hole).

SEBASTIAN COUNTY—M. W. Greesom's Spears 1, 9-7-29w, tested sw, sd 3515 ft. Ozark Nat. Gas Co.'s Giard 1, 34-8n-30w, sp, dr 720 ft.

SEVIER COUNTY — Tri-State O&G Co.'s Bank of DeQueen 1, 34-8s-32w, rigged up and sd.

UNION COUNTY — Southern Prod. Co.'s Wingfield 1, 16-19-15, sd 2608 ft. Lion O.R. Co. et al's Guy P. Hayes A-9, 4-16-15, water sand with strks of shale 4738-63 ft, ratholing

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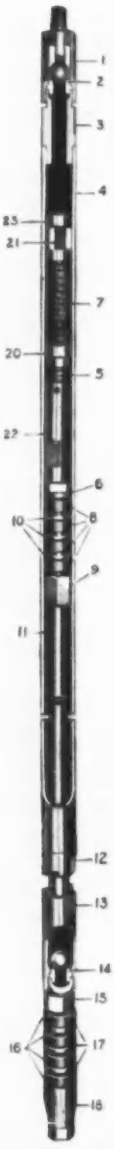
THE HUF-DUO PUMP



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The Stationary Plunger Tube connects Plunger Valve and Lower Valve. The outside tube is the moving or traveling part of the pump. The valve cups on Plunger Valve are inverted to prevent the accumulation of sand and to reduce the trouble often encountered of cups cutting out. A wiper cup can be placed above the hydraulic packing on plunger valve if desired.

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THE CHARLES N. HOUGH MFG. CO.
Franklin, Pa.

ahead. Wilson & Chapman's Handley 1, 3-18-13, ta with 600 ft fluid in hole 30 per cent sw, td 3570 ft; Doty Norman A-1, 3-18-13, lcn; Doty Norman B-1, 3-18-13, lcn; Henry Norman 1, 3-18-13, dk. Marine Oil Co.'s W. B. Thompson D-1, 3-18-13, rig up and sd; P. Winn Est. A-2, 11-18-13, ta 3586 ft.

WASHINGTON COUNTY — Lincoln Lease Holding Synd.'s Townsite 1, 3-15-32, ta 1500 ft. C. H. Willoughby's Jones 1, 34-16-30, sd 2150 ft. O'Hara & Shetterley's Boyd 1, 2-16-32, ta 650 ft. Delbert Graves' Cunningham 1, 14-15-32, sd in gray sand 602 ft.

VAN BUREN COUNTY — J. S. Martin's Scanland 1, 5-9-13, sd 50 ft.

YELL COUNTY—T. Luckett's Balcon 1, 36-7-12, sd 5710 ft.

MISSISSIPPI

Completions

COVINGTON COUNTY (Collins Dist.)—
Gulf Ref. Co., Pope 1, 35-8n-16w... * 4517
RANKIN COUNTY—
Love et al, Muse 1, 32-7n-4e..... * 4000

ADAMS COUNTY—Ark.-La. P. L. Co.'s Brandon Halls Farms Inc. 1, 32-8n-1w, rig.

CLARKE COUNTY (Quitman Dist.)—Gulf Ref. Co.'s Long Bell Lbr. Co. 1, sw sw 10-2n-16e, lcn.

CLAY COUNTY—Ohio Oil Co.'s Cantrell 1, ne ne 16-15-5e, elev 270 ft, dr limestone 4382 ft.

CHICKASAW COUNTY—Hightower & Golson's Fleming 1, 20-13s-3e, sd wo 6-inch cas 1505 ft.

COVINGTON COUNTY (Collins Dist.)—Gulf Ref. Co.'s Pope 1, nw ne 35-8n-16w, dry, abn in gray sand (Wilcox), td 4517 ft.

HUMPHREYS COUNTY — Danciger O&R Co.'s Bellgrade Lbr. Co. 1, nw nw 29-14n-4w, sp, sd finish rigging up.

JASPER COUNTY (Bay Springs Dist.)—Bay Springs Pet. Inc.'s J. H. Keyes 1, nw ne 21-2n-10e, dr 2000 ft.

JEFFERSON COUNTY — M. M. Stokes' School Board 1, 14-10n-2w, 12-inch 125 ft, dr 911 ft.

MONROE COUNTY (Amory Dist.)—Amory Dev. Co.'s Bourland 1, 2-15-19, ta in brown sand 3007 ft. P. J. McAlpine's Cowart 1, 2-12s-19w, dr 3223 ft. Associated Royalties' School Board 1, sw se 16-15-17, ta 60 ft.

NEWTON COUNTY (Newton Dist.)—Dalton Dev. Co.'s Majure 1, se se 25-6n-11e, rig.

NOXUBEE COUNTY (Macon Dist.)—Thompson O&G Synd.'s Donahue 1, se ne 25-16n-17e, elev 280 ft, 12½ cas 20 ft, top Eutaw 477 ft, dr 1212 ft.

RANKIN COUNTY (Jackson Dist.)—Love et al's Muse 1, nw se 32-7n-4e, dry, abn in black shale, td 4000 ft, did not deepen. Gulf Ref. Co.'s Hanna A-1, nw se 23-5-1e, 15½ cas 82 ft, 12½ cas 840 ft, dr 1441 ft.

SCOTT COUNTY—Gulley et al's Owen 1, 2-8n-9e, dk.

WARREN COUNTY (Vicksburg Dist.)—Eagle Lake O&G Co.'s Kiger 1, sw ne 9-18n-2e, sd 2607 ft.

WEBSTER COUNTY — P. J. McAlpine's Henley 1, 15-21-11e, old well, arr go in hole for core and to check td of 1865 ft.

WINSTON COUNTY (Louisville Dist.)—Miss. Drilling Co.'s Scarbrough 1, nw nw 15-13n-14e, coring 3525 ft.

YALABOUSHA COUNTY (Water Valley Dist.)—J. D. Collett et al's Blackmer 2, ne sw nw 14-11-4w, ta in quartzitic material 3478 ft.

ALABAMA

MADISON COUNTY — Tennessee Valley O&G Co.'s Fee 4, 1-4s-2e, no report.

SUMTER COUNTY (Livingston Dist.)—Forked Lightning O&G Co.'s Nixon 1, 30-20-2w, dk.

WASHINGTON COUNTY—Hobson et al's Wilson 1, 27-7-1w, driving 8-inch pipe below 1000 ft. Hobson Bros. 1, 9-8-2w, ta 1450 ft. Oscar Brown's U. S. Land & Cotton 2, 25-3-2w, ta 700 ft.

TENNESSEE

DECATUR COUNTY—Chester County O&G Co.'s Montgomery 1, arr res, td 2289 ft.

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When the pay sand is a long way down and you've got to get there cheap to make any money . . . brother, that's when you can be glad you're running a Wichita Falls Spudder.

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DIAMOND CHAINS

NIKROME SHAFTS

▼ LETTERS ▼

Dear Mr. Dudley:

Have just finished reading issue of the 17th and wish to express my appreciation of your fairness in Editorials in dealing with the varied interests in the oil and gas business. Particularly do I approve the stand you take under Editorial "WHY." Not only the majors and the smaller independents but the whole public is interested in a practical and sane solution of the oil man's troubles.

Think the operators themselves must take the lead as they are doing in Oklahoma and Kansas, shut down until price is right, refuse to drill new wells at a loss, and this should apply even more in case of the biggest producers rather than the strippers; they have more oil to lose, and certainly in better position to demand a fair price. Proration is fine in theory, and if backed by sentiment in the business as well as laws to enforce decrees would work out OK. However, it will always have its abuses. We only need look at POTENTIAL tables to see that wells are reported big in order to get as much allowable production as possible.

The Board of Regents, State University, is to be congratulated on stand taken, to demand shut down on university lands until market is provided for the gas now being wasted with the oil, when in fact the gas is worth several times as much as the oil if the amount of gas wasted is even half as much as reported. A million foot gas well is worth more than a five hundred barrel oil well in East Texas; is worth $50 per day in Jackson County, and worth $500.00 per day to consumers in Houston, with no other expense than transportation and distribution.

S. R. DRUSHEL.
Edna, Texas.

Dear Mr. Dudley:

I want to compliment you on the exceptionally fine editorial in the July 17th issue of THE OIL WEEKLY. It is gratifying to see this clear evidence of full and fair-minded comprehension of the situation.

R. C. HOLMES.
The Texas Company.
Houston, Texas.

Dear Sir:

I have been a subscriber and a reader of The Oil Weekly for many years, and really I would feel somewhat lost without it, hence my seemingly undue familiarity in writing this letter.

In the Editorial column of July 10th, there appears a splendid article, under the title "Isn't It About Time?" If the writer of this article had ended his writing at the termination of fourth or fifth paragraph, but when he said "but we honestly believe that the time has

Stressed to the LIMIT!

HOW far will the wire for Yellow Strand Rotary Drilling Line stretch before it breaks? How many bends before it snaps? How many twists? Is the steel up to the mark in every respect?

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Testing the elongation and breaking strength of wire.

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P-17

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come when something drastic must be done," has advocated the very opposite remedy to that which ought to be administered to this heart sick oil industry. The word "drastic" is a harsh and repulsive word to the American man, especially so when he knows he is right, both morally and legally; then to put the "drastic" measure or remedy to him and to force him to "take it and like it," is just too much. All lines of industry are now and have been for many months in practically as serious condition as has been the oil industry—cotton, grain, cattle, fruits and vegetables, in virtue no difference their conditions. Just because a great industry is sick near unto its death, is not at all the time to apply the lash to it.

This is the time when great, constructive statesmanship policies and measures should be put forth. Real diagnosis of the trouble should be made, and constructive, curative, remedies administered. There is a real and fundamental cause underlying the whole malady, and I am one who firmly believes it is not in the production side of the industry; neither is it in the production side of any of our major industries. All of the "drastic" measures at the command of even a dictator could not remedy the situation, by constantly lashing the production side of this great industry; one of the main troubles of the production is that it has borne the blunt of this lashing for several years.

One can constantly use "drastic" measures on the most peaceable child and is likely to make a hardened criminal out of this child, or he can use such measures on his old faithful yard dog, and make a vicious brute out of him within a comparatively short time; then on the other hand the wild man-eating animals of the jungles, by proper methods, may be tamed to do the spoken biddings of his master. The question is, what makes the difference?—the constructive measures in handling each case. Just so it is with this oil industry. It is lacking the proper, constructive measures in handling it. Because of the lashing and drastic means used and being used on the producing side of the oil industry, it has become resentful to and distrusting to the powers that be. Of the four children in the family of the oil industry—production, pipe line purchasing, refining and marketing—only one of the children receive very much of the scolding, buffing, lashing and drastic discipline, and that is the child called "production." Originally this child was as obedient as any one of the others, and its waywardness (if such may be termed) reaches back to the time and is in proportion to the amount of "drastic" measures used and that has been used against it. Favoritism in a family breeds jealousy, and jealousy breeds contempt.

Then, too, where such conditions as above mentioned exist or has existed in one family, it is best that each member after attaining his majority, to be separate and distinct in any and all business relationships to the other. Each to build his own home and to accumulate for himself. It is basic; it is fundamental; it is economic. It means happiness and prosperity for all concerned. Apply this figure to the oil industry, and its management.

With best regards to The Oil Weekly and to the oil industry.

O. A. ARNOLD.
Independent Producer,
Tyler, Texas.

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View of New Plant at Longview, Texas

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The Manufacturers of STURDYBILT Sectional Houses announce the opening of a complete plant in Longview to afford a better and faster service to East Texas fields. Carl H. Ahrens, sales manager, is in charge of the East Texas force of 26 men, and is maintaining day and night service to the field.

The Longview plant is equipped to turn out two 4-room houses daily. Arrangements have been completed with specialty contractors whereby sub-contracts can be made for foundation work, wiring, plumbing and painting in cases where it will add to the customer's convenience.

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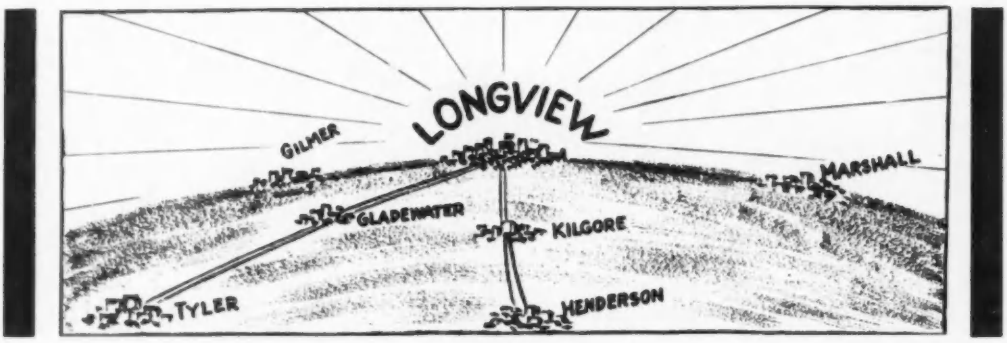

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LONGVIEW CHAMBER OF COMMERCE, Longview, Texas

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Flow Packer

AMERICAN IRON & MACHINE WORKS COMPANY

American Iron & Machine Works Company, Oklahoma City, is introducing a new type of flow packer, which is considered a combination of flow packer, pump packer and air lift.

Where the rock pressure is as much as 50 pounds, or more, the packer is calculated to save buying a string of tubing and rods. It can be set in a liner, lime formation or in casing.

The construction permits oil above the packer to return through a valve in the packer, so that it may be lifted instead of remaining above the packer. Because of this principle, it eliminates a difficulty in case the packer should need to be pulled, by taking the weight off the cup above and allowing the cup on the bottom of the packer to expand and adhere to the casing because of the gas pressure underneath.

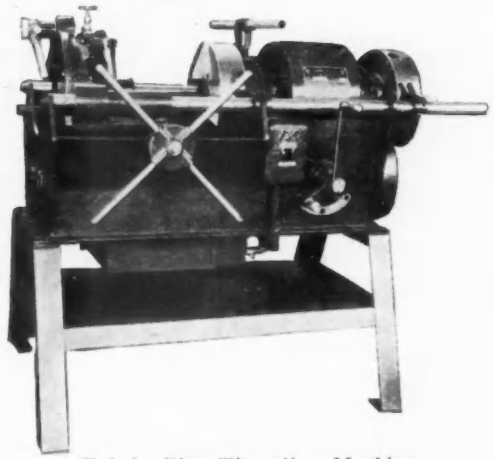
Where the natural gas is not strong enough to flow the well, the packer permits the use of the gas or air pressure to be turned in at the casing head, and will cause the well to flow with very little artificial pressure.

Further details may be obtained by writing American Iron & Machine Works, Oklahoma City, Oklahoma.

Power Pipe Machine

TOLEDO PIPE THREADING MACHINE COMPANY

Toledo Pipe Threading Machine Company, Toledo, Ohio, announces the new "Toledo" No. 1-2-4-a high speed, high production one-inch to four-inch power pipe machine. This machine is radically different in design than other four-inch power pipe machines.



Toledo Pipe Threading Machine

The frame is all steel construction, is equipped with eight quick opening die heads and dies—one for each size of pipe to permit instant change of dies from one size to another. The dies are the rake type made from high speed steel and easily reground. The cutter head is of special design with four high speed steel cutter knives cutting simultaneously.

The reamer is the cone-type with single high speed steel cutter blade, mounted on an arm which can be instantly swung into position for reaming and fed by carriage hand wheel.

Six spindle speeds are obtained instantly through one clutch lever and gear shifting lever, and all controls are easily managed by the right hand. The gears and friction clutch run in oil.

The chip drawer is fitted in the front of the machine, easily pulled out and emptied.

A centrifugal oil pump positive in action gives a flow of oil on the dies and cutter knives. The reverse is electrically controlled by the switch. Short nipples without nipple chuck may be produced and the rear chuck is fitted with special jaws for gripping flanges and pipe tong supports for screwing up fittings. It occupies a floor space of two feet 11 inches by three feet 10 inches and its net weight is 1750 pounds.

The "Toledo" No. 1-2-4 machine is ordinarily equipped with three horsepower 220-440 volt three phase 60 cycle motor.

Toledo Pipe Threading Machine Company will furnish complete information on this new machine.

New Cutting Torch

BASTIAN-BLESSING COMPANY

Bastian-Blessing Company, makers of Rego welding and cutting equipment (torches, generators, Red Star Regulators), announces a new cutting torch, light in weight and well balanced.

The weight of the new Type CC cutting torch is 46 ounces, with tip attached, and has an overall length of 20¼ inches from base of handle to end of tip nut. Wide adaptability, as to fuel gases and range are characteristic of the new model. Change the tip and it is ready for use with acetylene, hydrogen, carbohydrogen, oxy-acetylene, and the liquefied pretroleum gases such as butane or propane.

Monobloc Type D Pump

WORTHINGTON PUMP & MACHINERY CORPORATION

Worthington Pump & Machinery Corporation, 2 Park Avenue, New York City, announces the new monobloc (type D) centrifugal unit recently placed on the market.

The pump is bolted to the extended motor frame and the impeller is mounted on the end of the continuous motor shaft. The bronze impeller incorporates the shaft sleeve as an integral part, this construction being one of Worthington's latest shaft protection developments. The special cadmium-plated steel locking device for the impeller; the forged bronze packing gland; and the arrangement of shaft water-throwers, are other important features of this pump.

The ball bearing masterbilt motor, designed especially

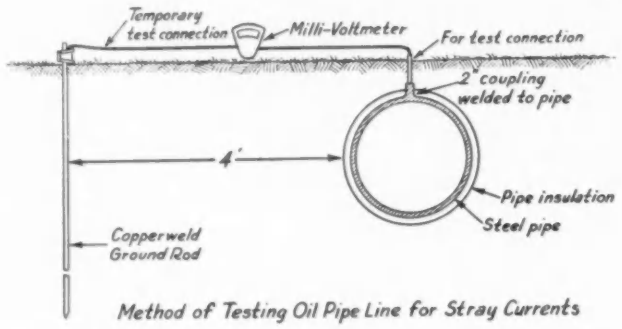
for Worthington, incorporates standard electrical construction.

Complete details on this new unit are available by writing the manufacturers.

Ground Rods

COPPERWELD STEEL COMPANY

Copperweld Steel Company, Glassport, Penna., has placed on the market a copper covered steel ground rod especially suitable for grounding oil pipe lines.



Method of Testing Oil Pipe Line for Stray Currents

The installation chart shown herewith illustrates the method by which pipe lines are tested for stray electrical currents. Data obtained from such tests is useful in reducing electrolysis and its corrosional effects.

Detailed information concerning the ground rods and their application to pipe line stray current detection may be obtained from Copperweld Steel Company, Glassport, Pennsylvania.

Gasket

FLEXITALIC GASKET COMPANY

Flexitallic Gasket Company, Camden, New Jersey, has placed on the market a new gasket for re-use and made of asbestos and metal, the metal used being determined by the use to which the gasket is to be put.

When it becomes necessary to remove the gasket for some reason after it has been in service for a while, release of pressure allows them to have a comeback from 30 to 40 per cent, according to the manufacturers. There is a double thickness metal reinforcement at the center of the gasket which is clinched, preventing the gasket from spreading under pressure.

Complete details concerning the new type of gasket may be obtained from Flexitallic Gasket Company, Eight and Bailey Streets, Camden.

Petroleum production problems in all of the oil fields of the United States will be analyzed in "Oil Well Completion and Operation," by H. C. George, which will be published September 1 by the University of Oklahoma press in conjunction with the United States Bureau of Mines.

The book is the first comprehensive study of the equipment and methods used in completing oil wells and in producing or raising the oil to the surface. It is illustrated with 52 plates. Professor George is director of the school of petroleum engineering of the University of Oklahoma and compiled the material while acting as consulting engineer for the Bureau of Mines.

Multi-Valve

LUDLOW VALVE MANUFACTURING COMPANY

Ludlow Valve Manufacturing Company, Troy, New York, recently has placed on the market a multi-valve particularly adapted to higher pressures and temperatures and designed to improve with use and age.

The principle behind the new valve by Ludlow is the elimination of erosion through reduction of velocity and density of flow. A secondary principle incorporated in the design, on a parity with the primary in so far as effect is concerned, is a peculiar design applied to the seat and plug which will not allow cumulative deposit of scale and other solids at the point of contact between the two.

Instead of using a single seat, the Ludlow multi-valve employs five or more, depending on the size of the valve, and each contact opens into an expansion chamber in which pressure is partially released, density partially lowered, and velocity retarded.

Combining a metal-on-metal contact in the seat with the multiple factor of the seats, the manufacturer has produced a valve which theoretically is correct so far as obtaining a seating arrangement which will cut through scale and viscous liquids and which obtains a positive shut-off that will not simmer.

Detailed information on the multi-valve may be obtained by writing Ludlow Valve Manufacturing Company, Troy, New York.

High Carbon Electrode

LINCOLN ELECTRIC COMPANY

Lincoln Electric Company, Cleveland, has developed an electrode for building up worn steel wearing surfaces known commercially as "Hardweld".

This electrode is designed for use in building up oil well drill bits, tractor shoes, dipper teeth, dies and other wearing surfaces. The weld produced has a tough dense surface of moderate hardness to resist wear and abrasion. The special coating will eliminate the objectionable wildness of the arc, eliminate the boiling and resulting porosity usually present in high carbon deposit; regulate the analysis of the deposit by controlling oxidation and variations of the arc length, according to the maker. When deposited on straight high carbon steel and allowed to cool naturally, the manufacturers state, "Hardweld" will have a hardness within the following range:

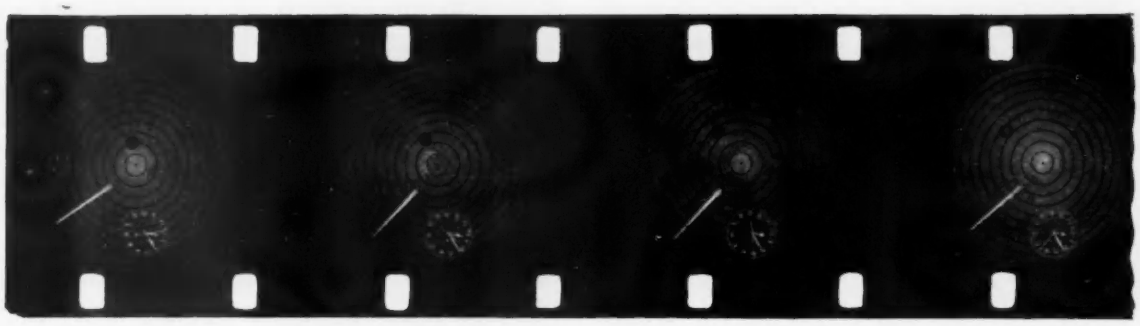
Rockwell C	Schoroscope	Brinell
30 to 45	40 to 61	290 to 425

More detailed information concerning the product may be obtained from the company direct.

Wilson-Snyder, Pittsburgh, has issued a four-page folder picturing and describing the forged parts for Wilson-Snyder slush pumps. The slush pump liners, machined from special steel forgings, are illustrated to show the type "M" rubber sleeve and cross section and the gland ring. The drop-forged and heat-treated fluid valves are illustrated with a picture showing details of design, and the slush pumps, set up and working on a job, are shown with the new side suction of reinforced hose. A copy of the bulletin is available upon request to the manufacturers or to Oil Well Supply Company or Wilson Supply Company, distributors.

SURWEL

« « « « Clinograph

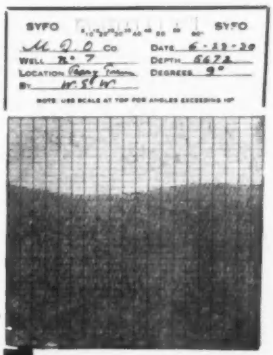


Photographs Don't Lie!

It pays to discover the truth about a non-producing well. With the aid of the gyroscope we have been able to make an instrument which will not only accurately tell the degree of deviation but the exact *direction* of it. The SURWEL Gyroscopic Clinograph has been subjected to exhaustive field tests over a three year period. The service is now available to operators to make complete and accurate surveys of wells in the shortest space of time.

SYFO Clinograph for Surveying Drilling Progress

The presence of crookedness in drilling is not indicated by any clear cut evidence. Well owners today insist that the hole be surveyed as its is drilled. For such the SYFO affords a direct and accurate record—on paper—and without the use of dangerous acids. It is easily and quickly operated. We will be glad to send descriptive literature.



[Also makers of SYFO Clinograph, an instrument that affords a direct and accurate record of drilling progress.]

Sperry-Sun Well Surveying Co.

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1504 First National Bank Bldg.

HOUSTON, TEXAS
1417 Esperson Bldg.

TULSA, OKLAHOMA
402 Petroleum Bldg.

LOS ANGELES, CALIF.
415 Petroleum Securities Bldg.

TYLER, TEXAS, Bell Building

CALGARY, ALBERTA, CANADA, Room 1, Central Block

SYFO

« « « « Clinograph

Manufacturer and Supply Dealer Notes

M. "BINK" MANNING

M. ("Bink") Manning, for many years associated with Humble Oil & Refining Company in various capacities ranging from gang pusher in 1917 to general superintendent of drilling and production in the Gulf Coast district in 1931, has resigned to assume the presidency of Houston Oil Field Material Company, Houston, a position held until his death by Mr. Manning's brother, S. E. Manning. "Bink" began his oil field career as a roustabout for Gulf Production Company in 1908. In 1917 he had worked his way up to production foreman. In this year he accepted a position as a gang pusher for Humble Oil & Refining Company at Goose Creek, rising quickly to the position of production foreman. In October, 1917, he was promoted to be night tool pusher, and in April, 1918, was assigned to West Columbia as superintendent. In May, 1920, he was named as superintendent of production for the Gulf Coast, and in April, 1925, he was appointed general superintendent of drilling and production in the Gulf Coast. Later he was appointed assistant to Dave Harris, and upon Mr. Harris' transfer to East Texas recently, he was appointed to succeed Mr. Harris in the Gulf Coast district.

Bantam Ball Bearing Company, South Bend, Indiana, announces a compilation of standard sizes of ball bearings for heavy duty service. The manufacturer claims this is the first series of the kind ever published and that while there have been lists presented in the heavy duty field, this is the first worked out on a progressive basis showing predetermined series of sizes.

Bantam Ball Bearing Company will send a copy of the compilation, in book form, on request.

E. A. Niemeyer of Peabody Engineering Corporation of New York, recently seriously ill with double pneumonia, is out of danger and on the road to recovery.

Halliburton Oil Well Cementing Company service crew in East Texas. Top row, left to right: J. W. McClanahan, D. Blevens, Eddie Hawthorne, O. L. Booth, Fred Weston, I. M. Jolley, O. L. Weems, H. P. Buie (superintendent); bottom row: C. C. Pressley, H. Northcutt, Fred Harrington, C. S. Good, H. Webb, R. F. Lane, F. Phenix and B. H. Webster

ELLSWORTH MILLS

Bastian - Blessing Company has named Ellsworth L. Mills, formerly sales manager, vice president of the company. He continues in charge of sales.

Mr. Mills' experience in welding dates back to days when, as a young engineer graduate of Cooper Union Institute, he foresaw the possibilities in the development of the welding field, and he has devoted himself to this since that time.

J. P. Ratigan, Los Angeles, is introducing its new pump-unit into East Texas through L. C. Harbert, sales manager, who has established residence at 507 South Augusta Street, Tyler, Texas. His East Texas sales force includes: C. J. "Chuck" Ratigan, who moved into Henderson after six months spent in the Los Angeles plant following a period in West Texas fields, and J. J. Cave, who has been located at Tyler since October, 1930.

Union Chain & Manufacturing Company has placed E. O. Williams, associated for 16 years with the transmission and industrial chain trade in various sales capacities, and formerly manager of Howe Chain Company, in charge of the Philadelphia office of the company, Bourse building, Philadelphia.

Bonney Forge & Tool Works, Allentown, Pennsylvania, recently issued bulletin WT12 describing in detail application of Bonney weldolets and threadolets to pipe for the formation of permanent joints

The bulletin is illustrated with reproduced action photographs showing the process of application and contains tables of specifications.

A copy of bulletin WT12 may be obtained by writing Bonney Forge & Tool Works at Allentown.

Spang, Chalfant & Company, Incorporated, Pittsburgh, manufacturers of "Spang" Welded and "Standard Seamless" steel pipe announces the opening of a sales office in the Russ building, San Francisco, California, in charge of J. V. Greer.

Goetze Gasket & Packing Company, Incorporated, New Brunswick, New Jersey; has issued a bulletin describing an improved valve disc constructed on a new principle to give it long life and prevent its cracking, flaking, or deteriorating.

The disc consists of alternate cushions of asbestos and steel, encased in a metal shell. Compressed asbestos is exposed on top of the disc to insure tightness against the disc holder, while the metal side of the disc faces the valve seat.

A copy of the bulletin may be obtained by writing Goetze Gasket & Packing Company, Incorporated, 500 Allen Avenue, New Brunswick, New Jersey.

LIKE THE SNOWS OF YESTERYEAR THEY'VE DISAPPEARED

Those will-o-the-wisp individuals who in boom times are so ready to offer their services at cut-rate prices—where are they now? Like the horses who fall back when the race is tight, they are forgotten by all save those who risked money upon them.

Any industry is fortunate which in good times and poor is sure of *consistently dependable* service—service rendered at fair prices by organizations of established responsibility and reputation.

Erle P. Halliburton
President.

HALLIBURTON OIL WELL CEMENTING COMPANY DUNCAN, OKLA.

Do You Receive THE CEMENTER Regularly As Issued?

If you do not, tear out and mail this coupon, and we will see to it that copies of this publication—containing practical oil industry information—are mailed to you regularly.

Name .....

Company .....

Address .....

OW

THAT'S QUEER!

Tool Dresser: "Well, how much hole you fellers made today?"

Driller: "Aw, 'bout eighty feet, I reckon."

Tool Dresser: "That's queer . . . . an' only been in th' hole three hours!"

Driller: "Listen, big boy, eighty feet in three hours ain't queer when we're usin' **APPLEMANS!"**

Don't queer your drilling with poor bits . . . drill fast with **APPLEMANS.**

B. K. APPLEMAN
BEAUMONT, TEXAS

Squeaks From the Bull Wheel

▼ ▼ ▼

Donald (to wife at English railway station): "Wha! Ye canna get a porter tae tak oor luggage?"

Wife: "Na na. Ye try, Donal', ye're accent's no' quite sae noticeable."

"How's your new girl?"

"Not so good."

"You always were lucky."

The Wife: "You say the new secretary is young and willing?"

The Tired Business Man: "Well, she's not very young."

Ticket Agent: "This ticket costs fifty dollars and allows you a three day hangover in St. Louis."

Buyer: "And how much if I don't get drunk?"

Curious: "Did you give your wife that little lecture on economy you talked about?"

Domesticity: "Yes."

Curiosity: "Any results?"

Domesticity: "I've got to give up smoking."

For Sale: Two police puppies. Prize-winning parents, both male. Reasonable.—Richmond, Va., paper.

Gold Digger I: "Would you marry for money, Dearie?"

Gold Digger II: "I don't know, but I have a secret wish that Cupid might shoot me with a Pierce-Arrow."

The stockings were hung
By the window with care.
They had been worn for six weeks
And they needed the air!

"They're comparatively rich, aren't they?"

"I wouldn't say 'comparatively,' but 'relatively.' They have a rich uncle of whom they expect great things."

Correcting Webster

"Experience"—that which is offered young college graduates in lieu of salary.

"Hash"—the ghost of a square meal.

"Prohibition"—that which is blamed for all the crimes once blamed on corsets, fast horses, sun spots and the Democratic Administration.

"Puritan"—one who looks upon breakfast as the beginning of a new day. (Antonym). Anti-Puritan, one who looks upon breakfast as the end of the day before.—The Staley Journal.

Visitor: "What sort of a man are you going to be when you get out of prison?"

Convict: "An old one, lady."

Tailor (having measured customer for suit): "And how would you like the pockets, sir?"

McTavish: "Well—just a wee bit deefucult to get at."

In the American advance during the final days of the war, a sergeant ordered an unbleached private to go into a dugout and clean out any Germans that happened to be there.

The colored gentleman blanched a bit, swallowed his Adam's apple, and then said huskily, "Ef yo' sees three or fo' men cum a runnin' out of dat hole don't shoot de fust one!"

Visitor in county jail: "What terrible crime has this man committeed?"

Warden: "He didn't commit any crime at all. He was going down the street a few days ago and saw one man shoot another and he is held as a material witness."

Visitor: "And where is the man who committeed the murder?"

Warden: "Oh, he's out on bail."

"I said your ship would come in this week. Was I correct?"

"Well, partly. My salary was docked!"

Mrs. Nut (handing her husband a saucerful of white powder): "John, taste that and tell me what you think it is."

Mr. Nut: "It tastes like soda!"

Mrs. Nut: "That's what I told Bridget. She declares it is rat poison."

Tramp: I've asked for money, I've begged for money and I've cried for money, Lady.

Lady: Have you ever thought of working for it, my man?

Tramp: No, not yet, mum. You see, I'm going through the alphabet and I ain't got to W yet.

"Say, how come old Robinson got well so consarned quick? Thought he was gonna kick the bucket last week?"

"Well, you see it was this way. He got wind that the young wife of his'n was gittin' too daw-gone friendly with the undertaker."

An Idaho man was fishing on Lake Crescent recently. He caught a big northern pike, the biggest he had ever landed in his long and busy life. Almost crazy with joy, he telegraphed his wife: "I've got one; weighs seven pounds and it is a beauty."

The following was the answer he got: "So have I; weighs ten pounds. Not a beauty—looks like you. Come home."

Walter Connally & Company

"The Dependable Machinery House"

TYLER, TEXAS

— Since 1884 —

SERVICING SHOP AND SUPPLIES

MID-CENTRAL LOCATION

PHONES: *Office:* L.D. 8 Local 244
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When You Need Us . . . Call Collect

Just Off the Press

PETROLEUM DICTIONARY

By HOLLIS P. PORTER
Member of
American Society of Mechanical Engineers.
American Petroleum Institute.

This work grew out of a demand for some source of definition for the terms used by the petroleum industry. It contains 3,000 definitions of words used constantly by all phases of the petroleum industry. It was published early in 1931 and has found its way into engineering departments, legal departments and land departments of producing concerns, as well as to the desks of executives of the petroleum industry.

Manufacturers also find it valuable for reference. Advertising agencies find it a valuable addition to the library.

234 Pages, 6 x 9, cloth bound, Price, Postpaid, $3.00

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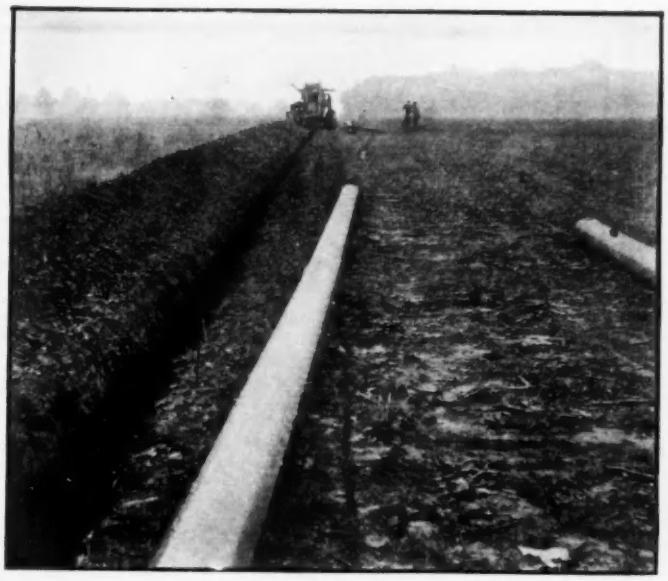
P. O. BOX 1307 HOUSTON, TEXAS



Model 48—A Big Buckeye for the largest pipe line ditches. It cuts 6 different widths—22 to 40 inches; and any depth to 8½ feet. All dimensions inclusive. Note that this Buckeye is away ahead of the pipe gang.

Years of Satisfactory Service Built Into Every Buckeye Pipe Liner

When most Buckeye owners standardize on them exclusively, often employing them in great numbers, it is reasonable to assume that a Buckeye means more to these thousands of enthusiastic users than just an efficient machine. It is not merely a question of mechanical innovations that interests the prospective purchaser, it is the actual work done and dollars earned by the equipment. In buying a Buckeye you are investing in its dependable earning power, in its consistent daily all-around service and usefulness.

With over thirty years of successful engineering and mechanical experience, the Buckeye operating principle and construction have been thoroughly tested and proven. Consequently, its endurance and efficiency may be accepted as fact—positive assurance that your money is safely protected.

Every prospective pipe line ditcher owner and user may have for the asking a copy of our interesting catalog, "BUCKEYE — The Pipe Liner." It contains comprehensive specification details, also authentic, surprising performance records.

The Buckeye Traction Ditcher Co.
FINDLAY, OHIO

There's a Buckeye Sales and Service Office Near You

for over thirty years Buckeye

Statement of Condition at
Close of Business, June 30, 1931

First National Bank

in Dallas

Dallas, Texas

ASSETS

Loans and Discounts		$53,985,886.58
United States Bonds to Secure Circulation		2,945,000.00
Other United States Securities Owned		7,614,450.00
Stock in Federal Reserve Bank		300,000.00
Other Stocks and Bonds		5,857,573.45
Furniture and Fixtures		238,386.02
Real Estate and Banking House		2,459,700.00
Other Real Estate		1,119,685.86
Customers' Liability Account Letters of Credit		231,400.67
Customers' Liability Acceptances (Less Anticipation)		702,912.78
CASH		
On Hand and with Federal Reserve Bank	$ 9,344,720.31	
With Other Banks	14,367,468.13	
With United States Treasurer	147,250.00	23,859,438.44
Total		$99,314,433.80

LIABILITIES

Capital Stock Paid In		$ 8,000,000.00
Surplus Fund		2,000,000.00
Undivided Profits, Net		4,842,918.02
Reserved for Contingencies		216,500.00
Reserved for Taxes, Etc.		261,819.08
Circulation		2,945,000.00
Letters of Credit Outstanding		231,400.67
Acceptances Executed for Customers		705,765.87
DEPOSITS		
Individual	$57,820,917.08	
Banks and Bankers	18,490,521.52	
United States Government	3,799,591.56	80,111,030.16
Total		$99,314,433.80

The Southwest's Leading Bank

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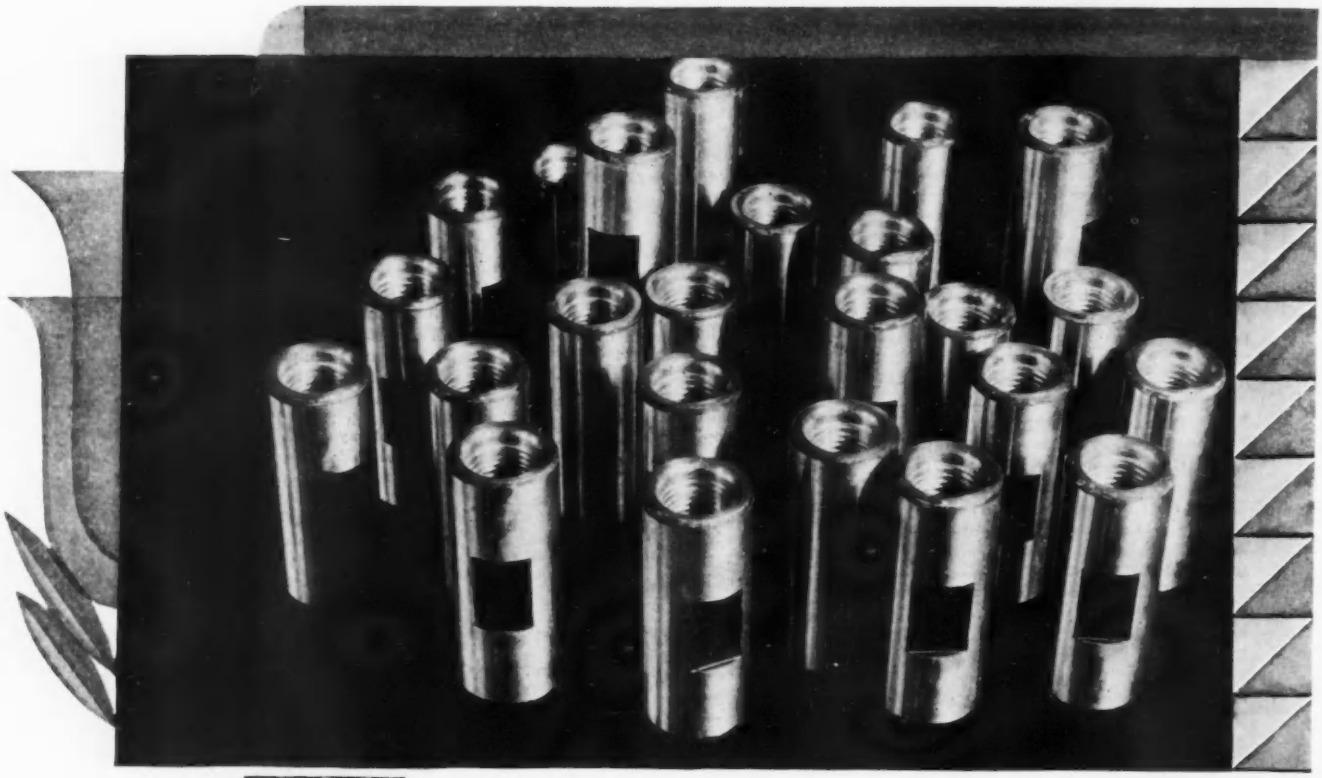
Every precaution has been taken to insure accuracy in listings in this Index to Advertisers, but last minute changes may result in omissions or erroneous listings for which we ask your indulgence. This index is for the convenience of readers and we do not assume liability for improper listings.

STRAIGHT FACTS

This is the seventeenth of a series and the second advertisement on SUCKER ROD COUPLINGS



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Mid-Continent and Eastern Distributors
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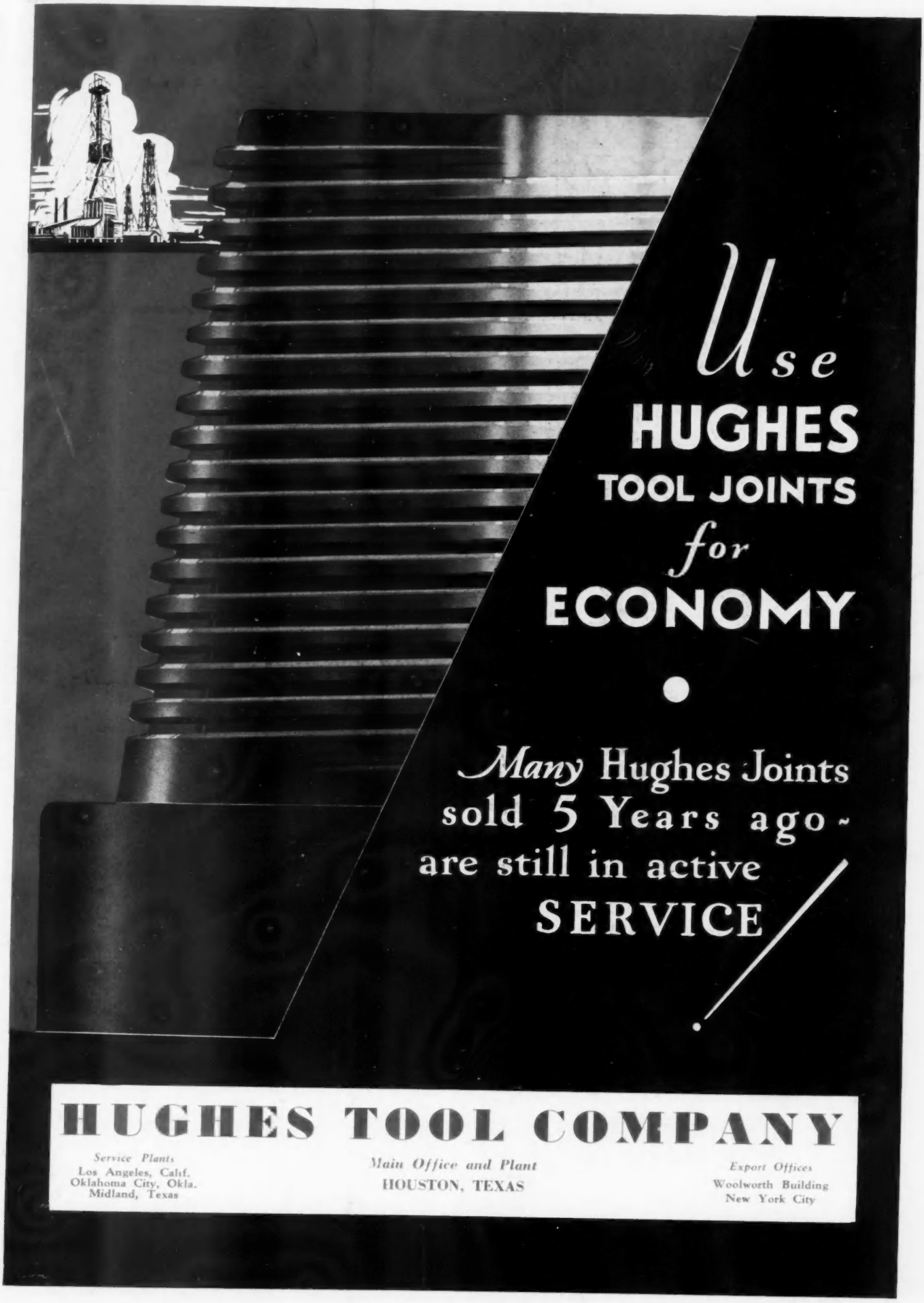
AXELSON SUCKER ROD COUPLINGS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